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(54) Title: NUCLEIC ACIDS, PROTEINS, AND ANTIBODIES

(57) Abstract: The present invention relates to novel proteins. More specifically, isolated nucleic acid molecules are provided encoding novel polypeptides. Novel polypeptides and antibodies that bind to these polypeptides are provided. Also provided are vectors, host cells, and recombinant and synthetic methods for producing human polynucleotides and/or polypeptides, and antibodies. The invention further relates to diagnostic and therapeutic methods useful for diagnosing, treating, preventing and/or prognosing disorders related to these novel polypeptides. The invention further relates to screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention further relates to methods and/or compositions for inhibiting or enhancing the production and function of the polypeptides of the present invention.

## **Nucleic Acids, Proteins, and Antibodies**

This application refers to a "Sequence Listing" that is provided on electronic media in computer readable form pursuant to Administrative Instructions Section 801(a)(i) and as a paper copy. The Sequence Listing forms a part of this description pursuant to Rule 5.2 and Administrative Instructions Sections 801 to 806, and is hereby incorporated in its entirety.

The Sequence Listing is provided as an electronic file (PA131PCTSL.txt, 5,210,863 bytes in size, created on May 18, 2001) on three identical compact discs (CD-R), labeled "COPY 1," "COPY 2," and "CRF." The Sequence Listing complies with Annex C of the Administrative Instructions, and may be viewed, for example, on an IBM-PC machine running the MS-Windows operating system by using the V viewer software, version 2000 (see World Wide Web URL: <http://www.fileviewer.com>).

### ***Field of the Invention***

[0001] The present invention relates to novel proteins. More specifically, isolated nucleic acid molecules are provided encoding novel polypeptides. Novel polypeptides and antibodies that bind to these polypeptides are provided. Also provided are vectors, host cells, and recombinant and synthetic methods for producing human polynucleotides and/or polypeptides, and antibodies. The invention further relates to diagnostic and therapeutic methods useful for diagnosing, treating, preventing and/or prognosing disorders related to these novel polypeptides. The invention further relates to screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention further relates to methods and/or compositions for inhibiting or enhancing the production and function of the polypeptides of the present invention.

### ***Background of the Invention***

[0002] Protein transport is a quintessential process for both prokaryotic and eukaryotic cells. Transport of an individual protein usually occurs via an amino-terminal signal sequence, which directs, or targets, the protein from its ribosomal assembly site to a particular cellular or extracellular location. Transport may involve any combination of several of the following steps: contact with a chaperone, unfolding, interaction with a receptor and/or a pore complex, addition of energy, and refolding. Moreover, an

extracellular protein may be produced as an inactive precursor. Once the precursor has been exported, removal of the signal sequence by a signal peptidase activates the protein.

[0003] Although amino-terminal signal sequences vary substantially, many patterns and overall properties are shared. Recently, hidden Markov models (HMMs), statistical alternatives to FASTA and Smith Waterman algorithms, have been used to find shared patterns, specifically consensus sequences (Pearson, W.R. and D.J. Lipman PNAS 85:2444-48 (1988); Smith, T.F. and M.S. Waterman J. Mol. Biol. 147:195-97 (1981)). Although they were initially developed to examine speech recognition patterns, HMMs have been used in biology to analyze protein and DNA sequences and to model protein structure (Krogh, A. et al. J. Mol. Biol. 235:1501-31 (1994); Collin, M. et al. Protein Sci. 2:305-14 (1993)). HMMs have a formal probabilistic basis and use position-specific scores for amino acids or nucleotides and for opening and extending an insertion or deletion. The algorithms are quite flexible in that they incorporate information from newly identified sequences to build even more successful patterns. Other methods exist to identify membrane associated proteins. Klein et al. have developed a method ("ALOM", also called as KKD) to detect potential transmembrane segments in polypeptides (Klein, P. et al. Biochim. Biophys. Acta, 815:468 (1985)). It attempts to identify the most probable transmembrane segment from the average hydrophobicity value over a range of amino acid residues. It predicts whether the segment is a transmembrane segment (INTEGRAL) or not (PERIPHERAL) and thus, can suggest membrane association of a polypeptide.

[0004] Some examples of the protein families which are known to be plasma membrane associated are receptors (nuclear, 4 transmembrane, G protein coupled, and tyrosine kinase), cytokines (chemokines), hormones (growth and differentiation factors), neuropeptides and vasomediators, protein kinases, phosphatases, phospholipases, phosphodiesterases, nucleotide cyclases, matrix molecules (adhesion, cadherin, extracellular matrix molecules, integrin, and selectin), seven transmembrane receptors, ion channels (calcium, chloride, potassium, and sodium), proteases, transporter/pumps (amino acid, protein, sugar, metal and vitamin; calcium, phosphate, potassium, and sodium) and regulatory proteins. Descriptions of some of these proteins (seven transmembrane receptors, kinases, matrix proteins, fibronectins, defensins, EF-hand domain containing

proteins, mac/perforin family members, pancreatic hormones, serine carboxypeptidases, tumor necrosis factors (TNFs)) and diseases associated with their dysfunction follow.

#### **Seven transmembrane receptors-**

[0005] The seven transmembrane receptors (also known as heptahelical, serpentine, or G protein-coupled receptors) comprise a superfamily of structurally related molecules. Possible relationships among seven transmembrane receptors (7TM receptors) for which amino acid sequence had previously been reported are reviewed in Probst et al., *DNA and Cell Biology*, 11(1):1-20 (1992). Briefly, the 7TM receptors exhibit detectable amino acid sequence similarity and all appear to share a number of structural characteristics including: an extracellular amino terminus; seven predominantly hydrophobic  $\alpha$ -helical domains (of about 20-30 amino acids) which are believed to span the cell membrane and are referred to as transmembrane domains TM 1-7; approximately twenty well-conserved amino acids; and a cytoplasmic carboxy terminus.

[0006] Each 7TM receptor is predicted to associate with a particular G protein at the intracellular surface of the plasma membrane. The binding of the receptor to its ligand is thought to result in activation (i.e., the exchange of GTP for GDP on the  $\alpha$ -subunit) of the G protein which in turn stimulates specific intracellular signal-transducing enzymes and channels. Thus, the function of each 7TM receptor is to discriminate its specific ligand from the complex extracellular milieu and then to activate G proteins to produce a specific intracellular signal. Transmembrane domain-3 (TM3) is believed to be essential in signal transduction (Cotecchia et al., *Proc. Natl. Acad. Sci., USA*, 87:2896-2900 (1990)). Other regions may be essential for biological activity as well (Lefkowitz, *Nature*, 265:603-604 (1993)).

[0007] Mutations in the third intracellular loop of one 7TM receptor (the thyrotropin receptor) and in the adjacent sixth transmembrane domain of another 7TM receptor (the luteinizing hormone receptor) have been reported to be the genetic defects responsible for an uncommon form of hyperthyroidism (Parma et al., *Nature*, 365:649-651 (1993) and for familial precocious puberty (Shenker et al., *Nature*, 365:652-654 (1993)), respectively. In both cases the mutations result in constitutive activation of the G protein receptors. Other studies have shown that mutations that prevent the activation of 7TM receptors are responsible for states of hormone resistance which are responsible for diseases such as

congenital nephrogenic diabetes insipidus. See Rosenthal et al., *J. Biol. Chem.*, 268:13030-13033 (1993). Still other studies have shown that several 7TM receptors can function as protooncogenes and be activated by mutational alteration. See, for example, Allen et al., *Proc. Natl. Acad. Sci. USA*, 88:11354-11358 (1991) which suggests that spontaneously occurring mutations in some 7TM receptors may alter the normal function of the receptors and result in uncontrolled cell growth associated with human disease states such as neoplasia and atherosclerosis. Therefore, mutations in 7TM receptors may underlie a number of human pathologies.

#### **Kinases-**

[0008] The kinases comprise the largest known group of proteins, a superfamily of enzymes with widely varied functions and specificities. Kinases regulate many different cell proliferation, differentiation, and signaling processes by adding phosphate groups to proteins. Receptor mediated extracellular events trigger the transfer of these high energy phosphate groups and activate intracellular signaling cascades. Activation is roughly analogous to the turning on a molecular switch, and in cases where signalling is uncontrolled, may be associated with or produce inflammation and cancer.

[0009] Almost all kinases contain a similar 250-300 amino acid catalytic domain. The N-terminal domain, which contains subdomains I-IV, generally folds into a two-lobed structure which binds and orients the ATP (or GTP) donor molecule. The larger C terminal lobe, which contains subdomains VIA-XI, binds the protein substrate and carries out the transfer of the gamma phosphate from ATP to the hydroxyl group of a serine, threonine, or tyrosine residue. Subdomain V spans the two lobes.

[0010] The kinases may be categorized into families by the different amino acid sequences (between 5 and 100 residues) located on either side of, or inserted into loops of, the kinase domain. These amino acid sequences allow the regulation of each kinase as it recognizes and interacts with its target protein. The primary structure of the kinase domain is conserved and contains specific residues and identifiable motifs or patterns of amino acids. The serine threonine kinases represent one family which preferentially phosphorylates serine or threonine residues. Many serine threonine kinases, including those from human, rabbit, rat, mouse, and chicken cells and tissues, have been described

(Hardie, G. and Hanks, S. (1995) The Protein Kinase Facts Books, Vol 1:7-20 Academic Press, San Diego, CA).

#### **Matrix Proteins-**

[0011] The matrix proteins (MPs) provide structural support, cell and tissue identity, and autocrine, paracrine and juxtacrine properties for most eukaryotic cells (McGowan, S.E. (1992) FASEB J. 6:2895-2904). MPs include adhesion molecules, integrins and selectins, cadherins, lectins, lipocalins, and extracellular matrix proteins (ECMs). MPs possess many different domains which interact with soluble, extracellular molecules. These domains include collagen-like domains, EGF-like domains, immunoglobulin-like domains, fibronectin-like domains, type A domain of von Willebrand factor (vWFA)-like modules, ankyrin repeat modules, RDG or RDG-like sequences, carbohydrate-binding domains, and calcium-binding domains.

[0012] The diversity, distribution and biochemistry of MPs is indicative of their many, overlapping roles in cell proliferation and cell signaling. MPs function in the formation, growth, remodeling, and maintenance of bone, and in the mediation and regulation of inflammation. Biochemical changes that result from congenital, epigenetic, or infectious diseases affect the expression and balance of MPs. This balance, in turn, affects the activation, proliferation, differentiation, and migration of leukocytes and determines whether the immune response is appropriate or self-destructive (Roman, J. (1996) Immunol. Res. 15:163-178).

#### **Fibronectins-**

[0013] Fibronectin proteins play a vital role in the structure and function of the extracellular matrix (ECM). Defects in the function of the ECM are thought to be involved in diseases such as osteoporosis, atherosclerosis, arthritis, and fibrotic diseases. Fibronectin enables cells to adhere to the ECM, and influences the growth and migration of cells as well as the organization of the cytoskeleton. As a major component of the ECM, Fibronectin is thought to influence such processes as cellular adhesion and migration, particularly during development, as well as processes such as wound repair (R.O. Hynes, *PNAS*, 96:2588-90 (1999)).

[0014] Fibronectin is a disulfide-linked dimeric glycoprotein composed of type I, type II, and type III fibronectin repeats. Type I repeats are approximately 45 amino acids in length and are located at the amino- and carboxy-termini of the protein. Type II domains are approximately 40-60 amino acids in length, and contain four conserved cysteines involved in disulfide bonding. It is thought that the type II domains may function in collagen binding. There are approximately 15-17 type III domains, arranged in tandem in the middle of the protein, that are thought to provide elasticity to fibronectin.

#### **Defensins-**

[0015] Mammalian defensins are produced by the epidermis and mucosal epithelium as innate effector molecules thought to function in an antimicrobial capacity. Defensins are cytotoxic peptides with a broad range of activity on gram-positive and negative bacteria, fungi, parasites, viruses, and mycobacteria. The two characterized defensins are the alpha and beta defensins. The alpha-defensins are produced by neutrophils and macrophage, while the beta-defensins are produced by epithelia (Singh, P.K., et al., *PNAS*, 95:14961-66 (1998); Lillard, J.W., et al., *PNAS*, 96:651-56 (1999)).

[0016] Defensin peptides range in length from approximately 29 to 35 amino acids, and include six conserved cysteine residues involved in disulfide bond formation and protein folding. The distribution and connection of the cysteine residues differs between the alpha and beta defensins.

#### **EF-hand domain containing proteins-**

[0017] Calcium is well known to be essential for cell signaling. However, calcium also plays a role in such cellular processes as protein processing and membrane traffic to and through the Golgi. Many proteins thought to be involved in the binding of calcium accomplish this in part through a protein calcium-binding domain known as the EF-hand domain.

[0018] The domain consists of a twelve residue loop flanked by a twelve residue alpha-helical domain on both sides. In the EF hand loop, the calcium ion is situated in a coordinated pentagonal bipyramidal configuration. An invariant Glutamic acid or Aspartic acid residue provides two oxygens for liganding the calcium ion.

[0019] Proteins containing this domain include aequorin and Renilla luciferin binding protein (LBP), Recoverins, Calmodulin, Calpain small and large chains, Calretinin, Calcyclin, Fimbrin, Serine/Threonine protein phosphatase, and Diacylglycerol kinase, for example.

#### **MAC/Perforin Family Members-**

[0020] The Membrane Attack Complex (MAC) is one of the sequentially activated, membrane bound complexes of the complement system used to eliminate diseased or non-compliant cells. Under this system, activated C5b sequentially binds C6 and C7, which insert into cell membranes. This complex then binds one molecule of C8, followed by between 1 and 18 molecules of C9, which polymerizes to generate a transmembrane channel. These transmembrane channels pierce the membrane, increasing the cell's permeability. These channels permit small molecules in the cell to exchange with the medium. Therefore, water is osmotically drawn into the cell, eventually resulting in the cell bursting.

[0021] Similarly, Perforin is a molecule produced by cytotoxic T cells. In the presence of calcium, Perforin polymerizes into transmembrane channels capable of lysing a variety of target cells in a nonspecific manner.

#### **Pancreatic Hormones- Serine Carboxypeptidases-**

[0022] Pancreatic hormone (PP) is a peptide of approximately 80 amino acids in length that is generated in pancreatic islets of Langerhans and consequently secreted. Pancreatic hormone is thought to function as a regulator of pancreatic and gastrointestinal functions.

[0023] Representative members of the pancreatic hormones family of proteins include Neuropeptide Y, Peptide YY, and skin peptide YY. These proteins may be useful as therapeutics for controlling secretion of the gonadotropin-releasing hormone, disorders related to feeding, vasoconstrictory actions, and colonic mobility, as well as antibacterial and antifungal activity.

#### **Serine Carboxypeptidases-**



[0024] Carboxypeptidases catalyze the hydrolysis of C-terminal residues of polypeptides. Carboxypeptidases are identified either as metallo-carboxypeptidases or serine-carboxypeptidases.

[0025] Serine carboxypeptidases have the ability to hydrolyze peptides as well as peptide amides from the C-terminus, and have a preferential release of a C-terminal arginine or lysine residue. Their subcellular location is usually extracellular or intracellular. The catalytic activity of serine carboxypeptidases is provided by a charge relay system involving an aspartic acid residue hydrogen-bonded to a histidine, which is itself hydrogen bonded to a serine.

#### **Tumor necrosis factors (TNF)-**

[0026] Tumor necrosis factors (TNF) alpha and beta are cytokines, which act through TNF receptors to regulate numerous biological processes, including protection against infection and induction of shock and inflammatory disease. The TNF molecules belong to the "TNF-ligand" superfamily, and act together with their receptors or counter-ligands, the "TNF-receptor" superfamily. So far, nine members of the TNF ligand superfamily have been identified and ten members of the TNF-receptor superfamily have been characterized.

[0027] Many members of the TNF-ligand superfamily are expressed by activated T-cells, implying that they are necessary for T-cell interactions with other cell types which underlie cell ontogeny and functions (Meager, A., *supra*).

[0028] Considerable insight into the essential functions of several members of the TNF receptor family has been gained from the identification and creation of mutants that abolish the expression of these proteins. For example, naturally occurring mutations in the FAS antigen and its ligand cause lymphoproliferative disease (Watanabe-Fukunaga, R. *et al.*, *Nature* 356:314 (1992)), perhaps reflecting a failure of programmed cell death. Mutations of the CD40 ligand cause an X-linked immunodeficiency state characterized by high levels of immunoglobulin M and low levels of immunoglobulin G in plasma, indicating faulty T-cell-dependent B-cell activation (Allen, R.C. *et al.*, *Science* 259:990 (1993)). Targeted mutations of the low affinity nerve growth factor receptor cause a disorder characterized by faulty sensory innervation of peripheral structures (Lee, K.F. *et al.*, *Cell* 69:737 (1992)).

[0029] TNF and LT- $\alpha$  are capable of binding to two TNF receptors (the 55- and 75-kd TNF receptors). A large number of biological effects elicited by TNF and LT- $\alpha$ , acting through their receptors, include hemorrhagic necrosis of transplanted tumors, cytotoxicity, a role in endotoxic shock, inflammation, immunoregulation, proliferation and anti-viral responses, as well as protection against the deleterious effects of ionizing radiation. TNF and LT- $\alpha$  are involved in the pathogenesis of a wide range of diseases, including endotoxic shock, cerebral malaria, tumors, autoimmune disease, AIDS and graft-host rejection (Beutler, B. and Von Huffel, C., *Science* 264:667-668 (1994)). Mutations in the p55 Receptor cause increased susceptibility to microbial infection.

[0030] Moreover, an about 80 amino acid domain near the C-terminus of TNFR1 (p55) and Fas was reported as the "death domain," which is responsible for transducing signals for programmed cell death (Tartaglia *et al.*, *Cell* 74:845 (1993)).

[0031] Plasma membrane associated proteins with a predominant tissue expression pattern are important targets for targeted drug delivery, tumor-targeted therapy (e.g., including, but not limited to, radioimmunotherapy) antibody mediated attack of diseased tissues or cancers, and immune mediated cytotoxicity.

[0032] The discovery of new plasma membrane associated proteins and the polynucleotides encoding these molecules thus satisfies a need in the art by not only providing new compositions useful in the diagnosis, treatment, and prevention of diseases associated with cell proliferation and cell signaling, particularly cancer, immune response and neuronal disorders; but also by providing new targets for immune based therapies.

### ***Summary of the Invention***

[0033] The present invention relates to novel proteins. More specifically, isolated nucleic acid molecules are provided encoding novel polypeptides. Novel polypeptides and antibodies that bind to these polypeptides are provided. Also provided are vectors, host cells, and recombinant and synthetic methods for producing human polynucleotides and/or polypeptides, and antibodies. The invention further relates to diagnostic and therapeutic methods useful for diagnosing, treating, preventing and/or prognosing disorders related to these novel polypeptides. The invention further relates to screening methods for

identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention further relates to methods and/or compositions for inhibiting or enhancing the production and function of the polypeptides of the present invention.

### *Detailed Description*

#### **Tables**

[0034] Table 1 summarizes some of the polynucleotides encompassed by the invention (including cDNA clones related to the sequences (Clone ID NO:Z), contig sequences (contig identifier (Contig ID:)) and contig nucleotide sequence identifier (SEQ ID NO:X)) and further summarizes certain characteristics of these polynucleotides and the polypeptides encoded thereby. The first column provides the gene number in the application for each clone identifier. The second column provides a unique clone identifier, "Clone ID NO:Z", for a cDNA clone related to each contig sequence disclosed in Table 1. The third column provides a unique contig identifier, "Contig ID:" for each of the contig sequences disclosed in Table 1. The fourth column provides the sequence identifier, "SEQ ID NO:X", for each of the contig sequences disclosed in Table 1. The fifth column, "ORF (From-To)", provides the location (i.e., nucleotide position numbers) within the polynucleotide sequence of SEQ ID NO:X that delineate the preferred open reading frame (ORF) that encodes the amino acid sequence shown in the sequence listing and referenced in Table 1 as SEQ ID NO:Y (column 6). Column 7 lists residues comprising predicted epitopes contained in the polypeptides encoded by each of the preferred ORFs (SEQ ID NO:Y). Identification of potential immunogenic regions was performed according to the method of Jameson and Wolf (CABIOS, 4; 181-186 (1988)); specifically, the Genetics Computer Group (GCG) implementation of this algorithm, embodied in the program PEPTIDESTRUCTURE (Wisconsin Package v10.0, Genetics Computer Group (GCG), Madison, Wisc.). This method returns a measure of the probability that a given residue is found on the surface of the protein. Regions where the antigenic index score is greater than 0.9 over at least 6 amino acids are indicated in Table 1 as "Predicted Epitopes". In particular embodiments, polypeptides of the invention comprise, or alternatively consist of, one, two, three, four, five or more of the predicted epitopes described in Table 1. It will be appreciated that depending on the analytical criteria used to predict antigenic determinants, the exact address of the determinant may

vary slightly. Column 8, "Tissue Distribution" shows the expression profile of tissue, cells, and/or cell line libraries which express the polynucleotides of the invention. The first number in column 8 (preceding the colon), represents the tissue/cell source identifier code corresponding to the key provided in Table 4. Expression of these polynucleotides was not observed in the other tissues and/or cell libraries tested. For those identifier codes in which the first two letters are not "AR", the second number in column 8 (following the colon), represents the number of times a sequence corresponding to the reference polynucleotide sequence (e.g., SEQ ID NO:X) was identified in the tissue/cell source. Those tissue/cell source identifier codes in which the first two letters are "AR" designate information generated using DNA array technology. Utilizing this technology, cDNAs were amplified by PCR and then transferred, in duplicate, onto the array. Gene expression was assayed through hybridization of first strand cDNA probes to the DNA array. cDNA probes were generated from total RNA extracted from a variety of different tissues and cell lines. Probe synthesis was performed in the presence of <sup>33</sup>P dCTP, using oligo(dT) to prime reverse transcription. After hybridization, high stringency washing conditions were employed to remove non-specific hybrids from the array. The remaining signal, emanating from each gene target, was measured using a Phosphorimager. Gene expression was reported as Phosphor Stimulating Luminescence (PSL) which reflects the level of phosphor signal generated from the probe hybridized to each of the gene targets represented on the array. A local background signal subtraction was performed before the total signal generated from each array was used to normalize gene expression between the different hybridizations. The value presented after "[array code]:" represents the mean of the duplicate values, following background subtraction and probe normalization. One of skill in the art could routinely use this information to identify normal and/or diseased tissue(s) which show a predominant expression pattern of the corresponding polynucleotide of the invention or to identify polynucleotides which show predominant and/or specific tissue and/or cell expression. Column 9 provides the chromosomal location of polynucleotides corresponding to SEQ ID NO:X. Chromosomal location was determined by finding exact matches to EST and cDNA sequences contained in the NCBI (National Center for Biotechnology Information) UniGene database. Given a presumptive chromosomal location, disease locus association was determined by comparison with the Morbid Map, derived from Online Mendelian Inheritance in Man (Online Mendelian

Inheritance in Man, OMIM™. McKusick-Nathans Institute for Genetic Medicine, Johns Hopkins University (Baltimore, MD) and National Center for Biotechnology Information, National Library of Medicine (Bethesda, MD) 2000. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>). If the putative chromosomal location of the Query overlaps with the chromosomal location of a Morbid Map entry, an OMIM identification number is disclosed in column 10 labeled "OMIM Disease Reference(s)". A key to the OMIM reference identification numbers is provided in Table 5. Column 11 provides the amino acid position of the ALOM hit(s) predicted for the amino acid sequence shown in SEQ ID NO:Y.

[0035] Table 2 summarizes homology and features of some of the polypeptides of the invention. The first column provides a unique clone identifier, "Clone ID NO:Z", corresponding to a cDNA clone disclosed in Table 1. The second column provides the unique contig identifier, "Contig ID:" corresponding to contigs in Table 1 and allowing for correlation with the information in Table 1. The third column provides the sequence identifier, "SEQ ID NO:X", for the contig polynucleotide sequence. The fourth column provides the analysis method by which the homology/identity disclosed in the Table was determined. Comparisons were made between polypeptides encoded by the polynucleotides of the invention and either a non-redundant protein database (herein referred to as "NR"), or a database of protein families (herein referred to as "PFAM") as further described below. The fifth column provides a description of the PFAM/NR hit having a significant match to a polypeptide of the invention. Column six provides the accession number of the PFAM/NR hit disclosed in the fifth column. Column seven, "Score/Percent Identity", provides a quality score or the percent identity, of the hit disclosed in columns five and six. Columns 8 and 9, "NT From" and "NT To" respectively, delineate the polynucleotides in "SEQ ID NO:X" that encode a polypeptide having a significant match to the PFAM/NR database as disclosed in the fifth and sixth columns. In specific embodiments polypeptides of the invention comprise, or alternatively consist of, an amino acid sequence encoded by a polynucleotide in SEQ ID NO:X as delineated in columns 8 and 9, or fragments or variants thereof.

[0036] Table 3 provides polynucleotide sequences that may be disclaimed according to certain embodiments of the invention. The first column provides a unique clone identifier, "Clone ID", for a cDNA clone related to contig sequences disclosed in Table 1. The

second column provides the sequence identifier, "SEQ ID NO:X", for contig sequences disclosed in Table 1. The third column provides the unique contig identifier, "Contig ID:", for contigs disclosed in Table 1. The fourth column provides a unique integer 'a' where 'a' is any integer between 1 and the final nucleotide minus 15 of SEQ ID NO:X, and the fifth column provides a unique integer 'b' where 'b' is any integer between 15 and the final nucleotide of SEQ ID NO:X, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:X, and where b is greater than or equal to a + 14. For each of the polynucleotides shown as SEQ ID NO:X, the uniquely defined integers can be substituted into the general formula of a-b, and used to describe polynucleotides which may be preferably excluded from the invention. In certain embodiments, preferably excluded from the invention are at least one, two, three, four, five, ten, or more of the polynucleotide sequence(s) having the accession number(s) disclosed in the sixth column of this Table. In further embodiments, preferably excluded from the invention are the specific polynucleotide sequence(s) contained in the clones corresponding to at least one, two, three, four, five, ten, or more of the available material having the accession numbers identified in the sixth column of this Table.

[0037] Table 4 provides a key to the tissue/cell source identifier code disclosed in Table 1, column 8. Column 1 provides the tissue/cell source identifier code disclosed in Table 1, Column 8. Columns 2-5 provide a description of the tissue or cell source. Codes corresponding to diseased tissues are indicated in column 6 with the word "disease". The use of the word "disease" in column 6 is non-limiting. The tissue or cell source may be specific (e.g. a neoplasm), or may be disease-associated (e.g., a tissue sample from a normal portion of a diseased organ). Furthermore, tissues and/or cells lacking the "disease" designation may still be derived from sources directly or indirectly involved in a disease state or disorder, and therefore may have a further utility in that disease state or disorder. In numerous cases where the tissue/cell source is a library, column 7 identifies the vector used to generate the library.

[0038] Table 5 provides a key to the OMIM reference identification numbers disclosed in Table 1, column 10. OMIM reference identification numbers (Column 1) were derived from Online Mendelian Inheritance in Man (Online Mendelian Inheritance in Man, OMIM. McKusick-Nathans Institute for Genetic Medicine, Johns Hopkins University (Baltimore, MD) and National Center for Biotechnology Information, National Library of

Medicine, (Bethesda, MD) 2000. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>). Column 2 provides diseases associated with the cytologic band disclosed in Table 1, column 9, as determined using the Morbid Map database.

[0039]

### **Definitions**

[0040] The following definitions are provided to facilitate understanding of certain terms used throughout this specification.

[0041] In the present invention, "isolated" refers to material removed from its original environment (e.g., the natural environment if it is naturally occurring), and thus is altered "by the hand of man" from its natural state. For example, an isolated polynucleotide could be part of a vector or a composition of matter, or could be contained within a cell, and still be "isolated" because that vector, composition of matter, or particular cell is not the original environment of the polynucleotide. The term "isolated" does not refer to genomic or cDNA libraries, whole cell total or mRNA preparations, genomic DNA preparations (including those separated by electrophoresis and transferred onto blots), sheared whole cell genomic DNA preparations or other compositions where the art demonstrates no distinguishing features of the polynucleotide/sequences of the present invention.

[0042] As used herein, a "polynucleotide" refers to a molecule having a nucleic acid sequence encoding SEQ ID NO:Y or a fragment or variant thereof; a nucleic acid sequence contained in SEQ ID NO:X (as described in column 3 of Table 1) or the complement thereof; a cDNA sequence contained in Clone ID NO:Z (as described in column 2 of Table 1 and contained within the ATCC Deposit). For example, the polynucleotide can contain the nucleotide sequence of the full length cDNA sequence, including the 5' and 3' untranslated sequences, the coding region, as well as fragments, epitopes, domains, and variants of the nucleic acid sequence. Moreover, as used herein, a "polypeptide" refers to a molecule having an amino acid sequence encoded by a

polynucleotide of the invention as broadly defined (obviously excluding poly-Phenylalanine or poly-Lysine peptide sequences which result from translation of a polyA tail of a sequence corresponding to a cDNA).

[0043] In the present invention, "SEQ ID NO:X" was often generated by overlapping sequences contained in multiple clones (contig analysis). A representative clone containing all or most of the sequence for SEQ ID NO:X is deposited at Human Genome Sciences, Inc. (HGS) in a catalogued and archived library. As shown, for example, in column 2 of Table 1, each clone is identified by a cDNA Clone ID (identifier generally referred to herein as Clone ID NO:Z). Each Clone ID is unique to an individual clone and the Clone ID is all the information needed to retrieve a given clone from the HGS library. Furthermore, clones disclosed in this application have been deposited with the ATCC on March 24, 2000, having the ATCC designation numbers PTA-1559. The ATCC is located at 10801 University Boulevard, Manassas, Virginia 20110-2209, USA. The ATCC deposits were made pursuant to the terms of the Budapest Treaty on the international recognition of the deposit of microorganisms for the purposes of patent procedure.

[0044] In specific embodiments, the polynucleotides of the invention are at least 15, at least 30, at least 50, at least 100, at least 125, at least 500, or at least 1000 continuous nucleotides but are less than or equal to 300 kb, 200 kb, 100 kb, 50 kb, 15 kb, 10 kb, 7.5kb, 5 kb, 2.5 kb, 2.0 kb, or 1 kb, in length. In a further embodiment, polynucleotides of the invention comprise a portion of the coding sequences, as disclosed herein, but do not comprise all or a portion of any intron. In another embodiment, the polynucleotides comprising coding sequences do not contain coding sequences of a genomic flanking gene (i.e., 5' or 3' to the gene of interest in the genome). In other embodiments, the polynucleotides of the invention do not contain the coding sequence of more than 1000, 500, 250, 100, 50, 25, 20, 15, 10, 5, 4, 3, 2, or 1 genomic flanking gene(s).

[0045] A "polynucleotide" of the present invention also includes those polynucleotides capable of hybridizing, under stringent hybridization conditions, to sequences contained in SEQ ID NO:X, or the complement thereof (e.g., the complement of any one, two, three, four, or more of the polynucleotide fragments described herein), the polynucleotide sequence delineated in columns 8 and 9 of Table 2 or the complement thereof, and/or cDNA sequences contained in Clone ID NO:Z (e.g., the complement of any one, two, three, four, or more of the polynucleotide fragments, or the cDNA clone within the pool of



cDNA clones deposited with the ATCC, described herein). "Stringent hybridization conditions" refers to an overnight incubation at 42 degree C in a solution comprising 50% formamide, 5x SSC (750 mM NaCl, 75 mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5x Denhardt's solution, 10% dextran sulfate, and 20 µg/ml denatured, sheared salmon sperm DNA, followed by washing the filters in 0.1x SSC at about 65 degree C.

[0046] Also contemplated are nucleic acid molecules that hybridize to the polynucleotides of the present invention at lower stringency hybridization conditions. Changes in the stringency of hybridization and signal detection are primarily accomplished through the manipulation of formamide concentration (lower percentages of formamide result in lowered stringency); salt conditions, or temperature. For example, lower stringency conditions include an overnight incubation at 37 degree C in a solution comprising 6X SSPE (20X SSPE = 3M NaCl; 0.2M NaH<sub>2</sub>PO<sub>4</sub>; 0.02M EDTA, pH 7.4), 0.5% SDS, 30% formamide, 100 µg/ml salmon sperm blocking DNA; followed by washes at 50 degree C with 1XSSPE, 0.1% SDS. In addition, to achieve even lower stringency, washes performed following stringent hybridization can be done at higher salt concentrations (e.g. 5X SSC).

[0047] Note that variations in the above conditions may be accomplished through the inclusion and/or substitution of alternate blocking reagents used to suppress background in hybridization experiments. Typical blocking reagents include Denhardt's reagent, BLOTTO, heparin, denatured salmon sperm DNA, and commercially available proprietary formulations. The inclusion of specific blocking reagents may require modification of the hybridization conditions described above, due to problems with compatibility.

[0048] Of course, a polynucleotide which hybridizes only to polyA<sup>+</sup> sequences (such as any 3' terminal polyA<sup>+</sup> tract of a cDNA shown in the sequence listing), or to a complementary stretch of T (or U) residues, would not be included in the definition of "polynucleotide," since such a polynucleotide would hybridize to any nucleic acid molecule containing a poly (A) stretch or the complement thereof (e.g., practically any double-stranded cDNA clone generated using oligo dT as a primer).

[0049] The polynucleotide of the present invention can be composed of any polyribonucleotide or polydeoxribonucleotide, which may be unmodified RNA or DNA or modified RNA or DNA. For example, polynucleotides can be composed of single- and

double-stranded DNA, DNA that is a mixture of single- and double-stranded regions, single- and double-stranded RNA, and RNA that is mixture of single- and double-stranded regions, hybrid molecules comprising DNA and RNA that may be single-stranded or, more typically, double-stranded or a mixture of single- and double-stranded regions. In addition, the polynucleotide can be composed of triple-stranded regions comprising RNA or DNA or both RNA and DNA. A polynucleotide may also contain one or more modified bases or DNA or RNA backbones modified for stability or for other reasons. "Modified" bases include, for example, tritylated bases and unusual bases such as inosine. A variety of modifications can be made to DNA and RNA; thus, "polynucleotide" embraces chemically, enzymatically, or metabolically modified forms.

[0050] The polypeptide of the present invention can be composed of amino acids joined to each other by peptide bonds or modified peptide bonds, i.e., peptide isosteres, and may contain amino acids other than the 20 gene-encoded amino acids. The polypeptides may be modified by either natural processes, such as posttranslational processing, or by chemical modification techniques which are well known in the art. Such modifications are well described in basic texts and in more detailed monographs, as well as in a voluminous research literature. Modifications can occur anywhere in a polypeptide, including the peptide backbone, the amino acid side-chains and the amino or carboxyl termini. It will be appreciated that the same type of modification may be present in the same or varying degrees at several sites in a given polypeptide. Also, a given polypeptide may contain many types of modifications. Polypeptides may be branched, for example, as a result of ubiquitination, and they may be cyclic, with or without branching. Cyclic, branched, and branched cyclic polypeptides may result from posttranslation natural processes or may be made by synthetic methods. Modifications include acetylation, acylation, ADP-ribosylation, amidation, covalent attachment of flavin, covalent attachment of a heme moiety, covalent attachment of a nucleotide or nucleotide derivative, covalent attachment of a lipid or lipid derivative, covalent attachment of phosphatidylinositol, cross-linking, cyclization, disulfide bond formation, demethylation, formation of covalent cross-links, formation of cysteine, formation of pyroglutamate, formylation, gamma-carboxylation, glycosylation, GPI anchor formation, hydroxylation, iodination, methylation, myristoylation, oxidation, pegylation, proteolytic processing, phosphorylation, prenylation, racemization, selenoylation, sulfation, transfer-RNA

mediated addition of amino acids to proteins such as arginylation, and ubiquitination. (See, for instance, PROTEINS - STRUCTURE AND MOLECULAR PROPERTIES, 2nd Ed., T. E. Creighton, W. H. Freeman and Company, New York (1993); POSTTRANSLATIONAL COVALENT MODIFICATION OF PROTEINS, B. C. Johnson, Ed., Academic Press, New York, pgs. 1-12 (1983); Seifter et al., Meth. Enzymol. 182:626-646 (1990); Rattan et al., Ann. N.Y. Acad. Sci. 663:48-62 (1992)).

[0051] "SEQ ID NO:X" refers to a polynucleotide sequence described, for example, in Tables 1 or 2, while "SEQ ID NO:Y" refers to a polypeptide sequence described in column 6 of Table 1. SEQ ID NO:X is identified by an integer specified in column 4 of Table 1. The polypeptide sequence SEQ ID NO:Y is a translated open reading frame (ORF) encoded by polynucleotide SEQ ID NO:X. "Clone ID NO:Z" refers to a cDNA clone described in column 2 of Table 1.

[0052] "A polypeptide having functional activity" refers to a polypeptide capable of displaying one or more known functional activities associated with a full-length (complete) protein. Such functional activities include, but are not limited to, biological activity, antigenicity [ability to bind (or compete with a polypeptide for binding) to an anti-polypeptide antibody], immunogenicity (ability to generate antibody which binds to a specific polypeptide of the invention), ability to form multimers with polypeptides of the invention, and ability to bind to a receptor or ligand for a polypeptide.

[0053] The polypeptides of the invention can be assayed for functional activity (e.g. biological activity) using or routinely modifying assays known in the art, as well as assays described herein. Specifically, one of skill in the art may routinely assay polypeptides (including fragments and variants) of the invention for activity using assays as described in the Examples.

[0054] "A polypeptide having biological activity" refers to a polypeptide exhibiting activity similar to, but not necessarily identical to, an activity of a polypeptide of the present invention, including mature forms, as measured in a particular biological assay, with or without dose dependency. In the case where dose dependency does exist, it need not be identical to that of the polypeptide, but rather substantially similar to the dose-dependence in a given activity as compared to the polypeptide of the present invention (i.e., the candidate polypeptide will exhibit greater activity or not more than about 25-fold less and, preferably, not more than about tenfold less activity, and most preferably, not

more than about three-fold less activity relative to the polypeptide of the present invention).

[0055] Table 1 summarizes some of the polynucleotides encompassed by the invention (including contig sequences (SEQ ID NO:X) and clones (Clone ID NO:Z) and further summarizes certain characteristics of these polynucleotides and the polypeptides encoded thereby.

### **Polynucleotides and Polypeptides of the Invention**

It has been discovered herein that the polynucleotides described in Table 1 are predicted to be localized to the plasma membrane of human cells. Accordingly, such polynucleotides, polypeptides encoded by such polynucleotides, and antibodies specific for such polypeptides find use in the diagnosis, treatment, and prevention of diseases associated with cell proliferation and cell signaling, particularly cancer, immune response and neuronal disorders.

Plasma membrane localization was predicted using the following method. All novel contigs in the HGS database were scored using the ALOM program developed by Klein et al. to detect potential transmembrane segments (Klein, P. et al. Biochim. Biophys. Acta 815:468 (1985); which is hereby incorporated by reference in its entirety herein). ALOM attempts to identify the most probable transmembrane segment from the average hydrophobicity value of 17-residue segments, if any. It predicts whether the segment is a transmembrane segment (INTEGRAL) or not (PERIPHERAL) comparing the discriminant score (reported as 'value') with a threshold parameter pre-defined to 0.0 for bacteria ('threshold'). For an integral membrane protein, position(s) of transmembrane segment(s) are also reported. Their length is fixed to 17 but their extension, i.e., the maximal range that satisfies the discriminant criterion, is also given in parentheses. The discrimination step mentioned above is continued after leaving out the segment till there remains no predicted transmembrane segment. The item 'count' is the number of predicted transmembrane segments.

The protein sequence used was the longest start-codon to stop-codon (or end of sequence) ORF. If the ORF was at least 100 amino acids long, and there was a predicted INTEGRAL membrane domain starting at least 40 amino acids downstream of the start

Met, the contig was selected as encoding a plasma-membrane-associated protein. The polynucleotides of the invention are predicted to be plasma membrane associated and comprise the predicted INTEGRAL membrane domains for each unique contig ID shown in column 11 of Table 1.

TABLE 1

Gene No:	Clone ID NO: Z <sub>i</sub>	Contig ID:	SEQ ID NO: X	ORF (From-To)	AA SEQ ID NO: Y	Predicted Epitopes	Tissue Distribution Library code: count (see Table IV for Library Codes)	Cytologic Band	OMIM Disease Reference(s):	ALOM Results
1	HCFNH88	413036	11	64 - 471	1416	Arg-23 to Leu-33, Thr-61 to Phe-73.	AR039: 9, AR033: 5, AR053: 5, AR089: 4, AR096: 4, AR104: 4, AR055: 4, AR060: 4, AR052: 3, AR061: 3, L0619: 1, H0059: 1 and H0423: 1.			44-60
2	HODDW3 7	456287	12	144 - 572	1417		AR055: 15, AR060: 9, AR052: 7, AR061: 7, AR089: 6, AR033: 6, AR053: 5, AR096: 3, AR104: 1, AR039: 0, L0748: 2, H0328: 1 and H0529: 1.			104-120, 83-99
3	HPMFI38	463734	13	81 - 530	1418		AR060: 6, AR055: 3, AR053: 3, AR096: 2, AR089: 2, AR061: 2, AR033: 2, AR052: 1, AR039: 1, AR104: 1, H0031: 1.			80-104, 20-37, 56-72, 134-150
4	HLTDP38	465120	14	171 - 530	1419		AR055: 9, AR060: 6, AR096: 5, AR089: 5, AR033: 4, AR052: 4,			40-57

5	HMHBT30	465711	15	15 - 365	1420	Gln-20 to Ala-26, Ser-53 to Glu-60.	AR061: 4, AR053: 3, AR039: 2, AR104: 1 L0662: 3, L0803: 2, L0805: 2, T0002: 1, H0090: 1, H0412: 1, L0794: 1, L0804: 1, L0655: 1, L0647: 1, L0666: 1 and L0663: 1.				90-113, 59-78, 2- 18, 28-44
6	HFCBA57	466000	16	164 - 595	1421		AR055: 6, AR060: 4, AR052: 4, AR061: 3, AR039: 3, AR089: 3, AR053: 3, AR096: 3, AR033: 3, AR104: 2 L0615: 1, S0420: 1, H0333: 1, H0286: 1, H0634: 1, H0144: 1 and H0423: 1.				31-57, 63- 85, 4-23
7	HSRAL33	488966	17	67 - 723	1422	Met-1 to Phe-6, Ser-12 to Asp-17, Ser-100 to Ser-105, Arg-163 to Asp-176, Val-192 to Glu-199.	AR033: 8, AR055: 5, AR053: 3, AR089: 3, AR052: 3, AR061: 3, AR039: 3, AR060: 3, AR104: 2, AR096: 2 L0756: 4, L0439: 2, S0412: 2, S0222: 1, H0327: 1, H0009: 1, L0157: 1 and S0031: 1.	7q31	126650, 126650, 164860, 180105, 222800,	126-143	

8	HSSMQ84	502907	18	20 - 415	1423	Pro-52 to Pro-57.		L0777: 4, L0766: 3, H0014: 2, L0731: 2, L0758: 2, S0282: 1, S0007: 1, S0280: 1, H0575: 1, H0328: 1, L0369: 1, L0637: 1, L0771: 1, L0768: 1, L0803: 1, L0655: 1, L0809: 1, S0380: 1, H0521: 1, H0627: 1, S3014: 1, L0748: 1, L0608: 1, S0011: 1 and S0192: 1.		246900, 274600, 274600, 602081		
								AR055: 8, AR052: 5, AR033: 4, AR061: 4, AR060: 4, AR089: 3, AR096: 3, AR039: 3, AR104: 3, AR053: 3 L0596: 2, L0588: 2, H0135: 1, H0056: 1, L0369: 1, L0803: 1, H0520: 1, S0027: 1 and S0276: 1.			89-105	
9	HUKAB82	503441	19	74 - 424	1424	Leu-9 to Arg-18, Phe-109 to Gly-115.		AR060: 140, AR055: 117, AR104: 113, AR039: 111, AR061: 92, AR033: 72, AR053: 70, AR052: 66, AR089: 55, AR096: 21 L0748: 5, L0749: 5, L0439: 3, L0779: 2, L0731: 2, H0556: 1, S0356: 1, H0575: 1, H0597: 1, H0551:			72-90	



10	HDPPP46	506828	20	29 - 328	1425				1, H0413: 1, H0059: 1, L0770: 1, L0771: 1, L0655: 1, H0144: 1, S0378: 1, L0747: 1 and S0276: 1. AR096: 4, AR033: 3, AR039: 3, AR089: 3, AR055: 3, AR052: 2, AR061: 2, AR053: 1, AR060: 1, AR104: 1 L0766: 4, H0617: 2, L0662: 2, H0690: 2, H0295: 1, H0662: 1, S0354: 1, H0729: 1, H0318: 1, H0545: 1, H0266: 1, H0401: 1, H0135: 1, H0087: 1, L5575: 1, L0803: 1, L0523: 1, L0383: 1, L0665: 1, H0703: 1, H0539: 1, H0521: 1, H0522: 1, S0406: 1, S0028: 1, L0779: 1 and H0352: 1.				52-68	
11	HMTME11	506893	21	72 - 425	1426	Met-1 to Arg-11, Gly-30 to Arg-39.			AR052: 5, AR053: 5, AR096: 4, AR055: 4, AR089: 4, AR033: 3, AR060: 3, AR039: 2, AR104: 2, AR061: 2 L0775: 3, H0624: 2, L0471: 2, S0051: 2, L0768: 2, H0659: 2, L0759: 2, L0605: 2, S0192: 2, S0114:				100-118	

25

13	HEIDT70	509728	23	25 - 597	1428				1, L0766: 1, L0776: 1, L0789: 1, L0664: 1, L0665: 1, H0710: 1, H0521: 1, S0013: 1, S0406: 1, L0744: 1, L0752: 1, L0758: 1, L0605: 1, S0026: 1 and H0543: 1. AR052: 319, AR096: 250, AR089: 171, AR060: 143, AR053: 121, AR104: 71, AR039: 57, AR033: 51, AR061: 51, AR055: 14 L0752: 3, L0748: 2, L0740: 2, L0731: 2, S0358: 1, H0438: 1, H0574: 1, H0046: 1, H0041: 1, H0272: 1, S0150: 1, L0794: 1, L0803: 1, L0804: 1, L0775: 1, L0661: 1, L0789: 1, H0672: 1, H0539: 1, L0758: 1 and S0436: 1.				138-154, 8-24	
14	HPWBL19	521848	24	60 - 362	1429	Pro-15 to Ser-21, Ser-60 to Tyr-65, Glu-90 to Asp-101.			AR033: 1, AR089: 1, AR053: 1, AR104: 1, AR061: 1, AR096: 0, AR055: 0, AR060: 0, AR052: 0 L0766: 6, L0740: 5, H0135: 1, L0769: 1, L0383: 1, S0044: 1, L0750: 1 and				62-89, 25-46	

15	HMKAD85	523186	25	48 - 422	1430			L0752: 1, AR033: 2, AR053: 2, AR089: 1, AR104: 1, AR061: 1, AR055: 1, AR060: 1, AR096: 0, AR039: 0, AR052: 0 S0007: 2, H0392: 2, L0745: 1, L0753: 1, L0759: 1 and L0589: 1.				88-104, 49-65
16	HE9NE12	524559	26	68 - 598	1431	Lys-12 to Lys-17, Thr-39 to Lys-45, Thr-49 to Glu-57, Thr-59 to Glu-69, Glu-80 to Ile-90, Gly-122 to Met-127, Lys-170 to Asn-177.		AR104: 1, AR096: 1, AR033: 1, AR089: 1, AR060: 1, AR061: 1, AR052: 0, AR055: 0, AR053: 0, AR039: 0 L0766: 5, L0438: 4, L0439: 4, L0803: 3, L0759: 3, H0445: 3, H0046: 2, L0157: 2, L0762: 2, L0363: 2, L0794: 2, L0774: 2, L0776: 2, L0790: 2, L0666: 2, H0144: 2, L0748: 2, L0749: 2, H0556: 1, H0159: 1, H0716: 1, H0459: 1, S0418: 1, L0005: 1, H0580: 1, S0046: 1, H0612: 1, H0586: 1, H0050: 1, L0471: 1, H0615: 1, H0488: 1, S0426: 1, H0529: 1, L0520: 1, L0638: 1, L0667: 1,				96-113

17	HE2AX73	525950	27	12 - 317	1432	Leu-15 to Ser-21.	L0373: 1, L0378: 1, L0805: 1, L0659: 1, L0526: 1, L0809: 1, L0663: 1, S0374: 1, H0711: 1, H0670: 1, H0521: 1, L0777: 1, L0780: 1, L0485: 1, L0097: 1, S0192: 1, H0543: 1, H0423: 1 and H0506: 1.	8p23	148370	81-102, 22-38	
18	HHGBV89	527491	28	53 - 376	1433	Arg-56 to Phe-61.	AR053: 4, AR061: 4, AR052: 3, AR055: 3, AR039: 3, AR060: 3, AR089: 2, AR096: 2, AR033: 1, AR104: 1 H0170: 2 AR055: 16, AR061: 7, AR052: 7, AR060: 6, AR033: 5, AR089: 5, AR053: 5, AR096: 3, AR039: 0, AR104: 0 H0052: 5, L0748: 5, L0756: 4, L0731: 4, S0360: 3, L0764: 3, L0747: 3, L0749: 3, H0255: 2, H0333: 2, L0055: 2, L0653: 2, L0740: 2, L0754: 2, L0750: 2, L0596: 2, H0352: 2, H0556: 1, H0341: 1, H0662: 1, H0306: 1, H0402: 1, H0036: 1, H0434: 1, H0150:			64-80, 15-31	

19	HTTDC06	529791	29	1 - 405	1434	Lys-13 to Asp-24, Pro-32 to Arg-40.	1, H0252: 1, L0456: 1, H0135: 1, H0413: 1, H0059: 1, H0529: 1, L0770: 1, L0769: 1, L0630: 1, L0521: 1, L0662: 1, L0775: 1, L0776: 1, L0493: 1, H0684: 1, S0328: 1, S0044: 1, L0777: 1, L0752: 1, L0755: 1, L0758: 1 and S0242: 1.					48-65	
20	HFXKR35	532045	30	531 - 16	1435	Asn-54 to Gly-60, Pro-166 to Pro-171.	AR039: 14, AR055: 14, AR033: 11, AR053: 11, AR052: 11, AR060: 10, AR104: 10, AR096: 9, AR089: 8, AR061: 8 S0380: 2, L0742: 2, L0779: 2, L0759: 2, H0333: 1, H0039: 1, H0040: 1, H0625: 1, H0561: 1, L0666: 1, L0663: 1, H0672: 1, L0747: 1, L0777: 1, L0758: 1 and H0444: 1.						125-157, 4-29, 67- 86, 36-52, 106-122
							AR089: 1, AR061: 1, AR053: 1, AR096: 1, AR060: 1, AR104: 1, AR033: 0, AR055: 0, AR039: 0, AR052: 0 L0777: 5, S0436: 5, S0116: 3, L0805: 3, L0809: 3, H0696: 3, H0423: 3, S0282:						

21	HHSDL85	534414	31	17 - 373	1436	Ser-7 to Gln-20, Pro-24 to Phe-34, Gly-76 to Gly-84.	2, S0354: 2, H0083: 2, H0316: 2, L0763: 2, L0767: 2, L0776: 2, S0406: 2, L0779: 2, S0114: 1, H0657: 1, H0656: 1, S0358: 1, S0444: 1, S0360: 1, H0340: 1, S0046: 1, H0619: 1, H0455: 1, H0333: 1, H0574: 1, H0559: 1, T0109: 1, H0156: 1, L0021: 1, T0074: 1, H0618: 1, H0318: 1, S0474: 1, S0049: 1, H0327: 1, H0530: 1, H0615: 1, H0553: 1, H0673: 1, H0708: 1, H0059: 1, L0065: 1, S0438: 1, H0207: 1, S0422: 1, L0520: 1, L0769: 1, L0761: 1, L0521: 1, L0774: 1, L0655: 1, L0659: 1, L0526: 1, L0793: 1, L0666: 1, L0664: 1, H0659: 1, H0518: 1, S0268: 1, S0176: 1, H0478: 1, S0390: 1, L0748: 1, L0750: 1, L0755: 1, L0731: 1, L0608: 1, L0362: 1, S0026: 1 and S0242: 1.					56-73
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22	HTECA32	535036	32	88 - 438	1437	Pro-15 to Thr-24, Glu-39 to Trp-47.	AR104: 2, AR089: 2, AR096: 2, AR052: 2 S0007: 3, S0001: 1, H0618: 1, H0009: 1, S0051: 1, L0763: 1, L0439: 1 and L0758: 1.				49-65	
23	HTEHL79	535040	33	37 - 453	1438	Arg-14 to Asp-20.	AR033: 54, AR055: 51, AR061: 43, AR089: 40, AR053: 38, AR060: 38, AR052: 26, AR096: 11, AR104: 10, AR039: 5 H0038: 2				49-65	
24	HPJBL54	536712	34	156 - 488	1439		AR033: 112, AR052: 80, AR096: 68, AR053: 67, AR089: 65, AR104: 61, AR060: 58, AR061: 55, AR039: 52, AR055: 38 H0052: 2, H0616: 2, L0779: 2, L0777: 2, H0656: 1, H0549: 1, H0038: 1, L0748: 1, L0758: 1, L0601: 1 and H0543: 1.	15q15.1	114240, 224120, 600839, 602099	46-62, 26- 42		



25	HSDDD20	538217	35	64 - 753	1440	Asp-46 to Glu-59.	1, H0638: 1, S0420: 1, S0045: 1, H0253: 1, H0267: 1, H0553: 1, S0150: 1, L0438: 1, H0519: 1, S0126: 1, H0660: 1, S0152: 1 and H0543: 1.				81-98, 13- 29, 175- 191, 62-78
26	HCUCG74	550208	36	588-929	1441		AR096: 1, AR055: 1, AR089: 1, AR060: 1, AR039: 1, AR033: 0, AR061: 0, AR053: 0, AR052: 0, AR104: 0 S0028: 3, S0001: 2, H0617: 2, L0361: 2, S0356: 1, S0045: 1, H0619: 1, S0278: 1, H0250: 1, H0231: 1, H0181: 1, S0390: 1 and S0031: 1.				177-193, 149-165
							AR052: 3, AR096: 2, AR053: 2, AR033: 2, AR089: 2, AR061: 2, AR060: 1, AR055: 1, AR104: 1, AR039: 0 L0789: 4, H0306: 2, L0809: 2, L0759: 2, L0596: 2, H0402: 1, H0580: 1, H0550: 1, H0370: 1, H0404: 1, H0559: 1, H0486: 1, H0031: 1, H0674: 1, H0135: 1, H0100: 1, L0800: 1,				

									L0794: 1, L0804: 1, L0805: 1, L0515: 1, L0783: 1, H0672: 1, L0777: 1, H0444: 1 and H0352: 1.				
27	HFJXK94	550992	37	96 - 404	1442				AR033: 4, AR089: 3, AR060: 2, AR055: 2, AR052: 1, AR053: 1, AR061: 1, AR096: 0, AR039: 0, AR104: 0 S0242: 1 and S0196: 1.				38-59
28	HPJAV46	551777	38	24 - 362	1443	Pro-69 to Gln-77.			AR089: 45, AR096: 43, AR060: 39, AR039: 37, AR055: 27, AR104: 20, AR033: 20, AR052: 19, AR053: 14, AR061: 14 H0250: 60, S0126: 24, H0013: 9, H0124: 9, H0494: 8, H0521: 7, H0428: 6, H0553: 6, H0644: 6, H0038: 6, S0027: 6, S0040: 5, T0039: 5, H0050: 5, L0471: 5, H0135: 5, H0551: 5, T0067: 5, H0144: 5, H0539: 5, S0028: 5, L0439: 5, L0740: 5, H0171: 4, S0356: 4, S0046: 4, H0586: 4, H0486: 4, H0599: 4, H0046: 4, H0024: 4, H0266: 4, S0003: 4, H0040: 4, H0059: 4.				7-37, 89-113, 45-62

$(2\delta_{1,1}^{(n)})^{2/3} \approx 1.01$ ,  $\delta_{1,1}^{(n)} \approx 0.5$  and  $\delta_{1,1}^{(n)} \approx 0.5$  are the same as in [10].

				1, H0602: 1, H0587: 1, H0642: 1, L0477: 1, T0040: 1, H0635: 1, H0097: 1, H0036: 1, S0346: 1, H0421: 1, H0230: 1, H0196: 1, H0251: 1, T0115: 1, H0086: 1, H0009: 1, H0081: 1, H0197: 1, H0023: 1, H0023: 1, H0107: 1, T0010: 1, H0271: 1, S0318: 1, S0334: 1, S0316: 1, H0284: 1, S0314: 1, S0250: 1, S0214: 1, H0328: 1, L0483: 1, H0212: 1, H0708: 1, S0036: 1, H0634: 1, H0488: 1, H0433: 1, H0056: 1, H0623: 1, T0069: 1, H0560: 1, H0561: 1, S0448: 1, S0440: 1, H0509: 1, H0131: 1, S0150: 1, S0144: 1, S0344: 1, S0208: 1, S0210: 1, S0426: 1, H0529: 1, L0384: 1, S0216: 1, S0148: 1, H0593: 1, H0435: 1, H0658: 1, H0666: 1, H0518: 1, S0004: 1, H0134: 1, H0436: 1, S0432: 1, S0390: 1, S3014: 1, L0754: 1, L0746: 1, L0758: 1, L0596: 1, L0605: 1, L0592: 1, L0581:								
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29	HTTDL61	558312	39	21 - 329	1444				1, L0593: 1, L0595: 1, S0011: 1, H0668: 1, S0026: 1, S0446: 1 and H0293: 1, AR053: 16, AR096: 14, AR052: 14, AR055: 13, AR089: 11, AR060: 9, AR033: 9, AR104: 6, AR061: 5, AR039: 3, H0038: 8, H0616: 4, L0779: 3, L0758: 3, L0753: 2, L0032: 1, T0006: 1, H0040: 1, S0002: 1, L0768: 1, S0053: 1 and H0547: 1, AR039: 13, AR053: 11, AR055: 9, AR089: 9, AR033: 9, AR060: 7, AR096: 7, AR052: 7, AR061: 5, AR104: 5, S0222: 1				42-67, 3-19
30	HFPBN94	561612	40	1235 - 885	1445	Ser-60 to Ser-66.			AR052: 4, AR061: 3, AR055: 3, AR053: 3, AR089: 2, AR033: 2, AR060: 2, AR039: 1, AR096: 1, AR104: 1, S0002: 70, S0426: 29, S0278: 28, S0003: 28, H0521: 28, S0344: 27, S0142: 14, L0747: 14, H0090: 13, S0144: 13,				36-61, 92-110
31	HYBBG69	562024	41	401 - 1144	1446	Arg-35 to Cys-46, Phe-52 to Met-57, Thr-70 to Gly-84, Thr-88 to Glu-109, Gly-151 to Gly-159, Ser-167 to Thr-175, Ala-193 to Phe-206, Arg-215 to Gly-223.			AR052: 4, AR061: 3, AR055: 3, AR053: 3, AR089: 2, AR033: 2, AR060: 2, AR039: 1, AR096: 1, AR104: 1, S0002: 70, S0426: 29, S0278: 28, S0003: 28, H0521: 28, S0344: 27, S0142: 14, L0747: 14, H0090: 13, S0144: 13,				1-33, 230-247, 125-141

					S0126: 13, H0580: 10, S0214: 10, H0591: 10, L0659: 10, L0731: 10, H0575: 9, S0360: 8, H0046: 8, L0759: 8, H0586: 6, H0545: 6, L0771: 6, L0663: 6, L0756: 6, H0013: 5, H0042: 4, H0622: 4, H0040: 4, H0522: 4, L0777: 4, H0587: 3, H0318: 3, H0581: 3, H0546: 3, H0014: 3, L0163: 3, H0030: 3, L0775: 3, L0651: 3, L0805: 3, L0606: 3, S0374: 3, H0519: 3, H0518: 3, L0740: 3, L0755: 3, H0583: 2, S0116: 2, H0637: 2, H0486: 2, H0251: 2, H0012: 2, H0375: 2, H0416: 2, S0250: 2, H0553: 2, H0163: 2, H0038: 2, H0063: 2, H0538: 2, L0770: 2, L0646: 2, L0662: 2, L0649: 2, L0666: 2, L0565: 2, S0328: 2, S0380: 2, S0044: 2, L0744: 2, L0750: 2, L0752: 2, L0758: 2, S0031: 2, L0591: 2, L0599: 2, H0668: 2, S0192: 2, S0194: 2, S0282: 1, H0661: 1, H0662: 1, H0306:				
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32	HDPO105	562077	42	350 -	1447	Met-1 to Gly-6,	AR096: 1, AR089: 1, 1 and H0352: 1.	1, H0638: 1, S0358: 1, S0376: 1, T0008: 1, S0132: 1, H0619: 1, H0645: 1, H0351: 1, H0411: 1, L0623: 1, H0427: 1, S0280: 1, L0022: 1, T0082: 1, H0036: 1, H0390: 1, L0105: 1, H0544: 1, H0041: 1, H0009: 1, H0620: 1, H0015: 1, H0373: 1, S6028: 1, H0039: 1, H0031: 1, H0644: 1, L0142: 1, L0143: 1, H0673: 1, H0674: 1, S0364: 1, H0316: 1, T0067: 1, H0100: 1, H0494: 1, S0370: 1, S0466: 1, H0509: 1, L0763: 1, L0769: 1, L0638: 1, L0373: 1, L0764: 1, L0561: 1, L0803: 1, L0774: 1, L0375: 1, L0806: 1, L0653: 1, L0776: 1, L0655: 1, L0607: 1, L0657: 1, L0782: 1, L0529: 1, L0790: 1, L0664: 1, H0144: 1, H0684: 1, H0435: 1, H0672: 1, S0330: 1, H0555: 1, S3012: 1, L0748: 1, L0757: 1, H0595: 1, L0584: 1, L0597: 1 and H0352: 1.						35-62
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					Pro-23 to Asp-37.					AR061: 0, AR055: 0, AR033: 0, AR104: 0, AR053: 0, AR052: 0, AR060: 0 H0250: 5, L0740: 4, H0657: 3, L0761: 3, L0659: 3, L0809: 3, L0717: 2, H0620: 2, H0135: 2, H0063: 2, H0100: 2, L0789: 2, L0751: 2, L0750: 2, L0731: 2, H0543: 2, S0116: 1, H0255: 1, H0664: 1, H0580: 1, H0253: 1, H0581: 1, H0421: 1, H0123: 1, H0179: 1, H0617: 1, H0606: 1, H0163: 1, L0638: 1, L0771: 1, L0794: 1, L0766: 1, L0650: 1, L0655: 1, L0783: 1, L0532: 1, L0666: 1, H0520: 1, H0547: 1, H0660: 1, H0648: 1, S0380: 1, H0521: 1, H0522: 1, H0555: 1, L0756: 1, L0779: 1, S0436: 1 and S0276: 1.				42-66, 67- 84, 9-25
33	HIMAGF64	562775	43	39 - 428	1448	Leu-30 to Thr-35, Phe-38 to Gly-44.				AR052: 7, AR053: 4, AR089: 3, AR060: 3, AR096: 3, AR033: 2, AR061: 2, AR039: 2, AR055: 2, AR104: 2 S0278: 1 and H0445: 1.				



34	HACCO38	563589	44	143 - 700	1449	Lys-14 to Asp-24, Gln-114 to Leu-119, Asp-122 to Arg-127.	AR053: 12, AR052: 11, AR089: 8, AR096: 8, AR055: 7, AR060: 7, AR033: 5, AR061: 5, AR104: 4, AR039: 3 T0023: 2, L0662: 2, S0330: 2, L0749: 2, L0758: 2, S0356: 1, S0358: 1, S0360: 1, S0408: 1, L0586: 1, S0280: 1, H0590: 1, H0581: 1, H0052: 1, H0014: 1, S0003: 1, H0316: 1, H0591: 1, S0450: 1, S0150: 1, S0426: 1, L0766: 1, S0216: 1, L0747: 1, L0756: 1, L0752: 1 and L0596: 1.			138-155, 83-99, 35- 51, 59-75
35	HRAAM31	567314	45	14 - 355	1450	Met-1 to Gly-6.	AR039: 35, AR053: 29, AR104: 28, AR033: 25, AR052: 23, AR096: 22, AR055: 19, AR089: 18, AR060: 13, AR061: 10 H0555: 1			23-40, 50- 66
36	HWDA0 3	571474	46	296 - 670	1451		AR096: 2, AR089: 1, AR039: 1, AR052: 1, AR033: 1, AR104: 1, AR060: 0, AR061: 0, AR055: 0 H0600: 1 and S0002: 1.			71-87, 98- 114
37	HTHCV60	572607	47	93 - 473	1452		AR096: 14, AR089: 12,			73-89,

38	HTLEV17	573110	48	15 - 428	1453				AR055: 8, AR060: 8, AR052: 8, AR033: 6, AR053: 6, AR039: 4, AR061: 4, AR104: 3 H0556: 1, H0050: 1, H0063: 1 and H0494: 1, AR039: 14, AR033: 10, AR053: 9, AR055: 7, AR104: 7, AR089: 7, AR096: 6, AR052: 5, AR060: 5, AR061: 4 L0741: 3, L0438: 2, S0222: 1, H0427: 1, H0618: 1, H0253: 1, H0284: 1, S0038: 1, H0494: 1, S0144: 1, L0743: 1 and L0366: 1, AR089: 4, AR096: 3, AR033: 3, AR052: 3, AR060: 2, AR055: 2, AR053: 1, AR061: 1, AR104: 1, AR039: 0 H0422: 2, H0339: 1 and L0769: 1.				111-127, 34-50
39	HCFAB91	573179	49	70 - 438	1454	Lys-22 to Gly-28, Lys-39 to Glu-48, Ser-54 to Trp-59.			AR089: 4, AR096: 3, AR033: 3, AR052: 3, AR060: 2, AR055: 2, AR053: 1, AR061: 1, AR104: 1, AR039: 0 H0422: 2, H0339: 1 and L0769: 1.				68-88
40	HMWEE18	573751	50	356 - 700	1455	His-13 to Ser-21.			AR055: 11, AR060: 7, AR052: 5, AR089: 5, AR061: 5, AR033: 5, AR053: 5, AR096: 4, AR039: 4, AR104: 3 L0747: 3, L0754: 2.				81-115

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				530				AR089: 12, AR096: 10, AR052: 8, AR033: 8, AR061: 7, AR053: 5, AR104: 0, AR039: 0 L0756: 2, H0051: 1, S0380: 1, L0748: 1 and L0753: 1.				
43	HNGER82	576739	53	229 - 639	1458	Gln-22 to Gly-28, Thr-109 to Gly-114, Phe-117 to Arg-124.		AR033: 4, AR089: 3, AR060: 3, AR104: 1, AR061: 1, AR053: 1, AR096: 1, AR039: 0, AR052: 0, AR055: 0 L0748: 5, H0444: 2, H0402: 1, L0367: 1 and S0052: 1.				68-86, 89- 108, 40-56
44	HBJLU13	578925	54	252 - 551	1459	Gly-35 to Gln-41, Phe-51 to Lys-57.		AR060: 10, AR089: 8, AR033: 7, AR104: 2, AR061: 1, AR053: 1, AR096: 1, AR055: 1, AR039: 0 H0123: 2 and H0318: 1.				63-84
45	HCFDC55	581501	55	73 - 426	1460			AR033: 5, AR052: 4, AR089: 4, AR053: 4, AR055: 3, AR060: 2, AR096: 2, AR061: 2, AR039: 1 L0438: 4, L0803: 3, H0169: 2, L0526: 2, H0657: 1, S0408: 1, H0421: 1,				53-75, 92- 112, 25-45

46	HFKCT25	586810	56	178 - 591	1461	Leu-12 to Gly-18, Tyr-27 to Glu-34, Lys-127 to Pro-132.	H0050: 1, S0370: 1, L0637: 1, L0646: 1, L0800: 1, L0662: 1, L0766: 1, L0607: 1, L0659: 1, L0665: 1, L0352: 1, H0659: 1, H0651: 1, S0328: 1, H0436: 1, L0777: 1, L0752: 1, S0242: 1 and H0422: 1.					83-101, 62-78
47	HAPOW05	587520	57	13 - 330	1462	Lys-2 to Ser-10, Gln-20 to Leu-25, Val-29 to Arg-53.	AR053: 2, AR089: 2, AR060: 2, AR096: 1, AR055: 1, AR061: 1, AR033: 1, AR104: 1, AR039: 0, AR052: 0 H0012: 3, L0794: 3, L0766: 2, L0788: 2, S0192: 2, H0618: 1, H0015: 1, H0073: 1, T0023: 1, H0063: 1, L0763: 1, L0787: 1, L0532: 1, S3012: 1, S0027: 1, L0747: 1, L0750: 1, L0731: 1 and S0276: 1.					66-82
48	HCUFP05	589293	58	660 - 331	1463	Gly-2 to Leu-7, Pro-11 to Leu-26,	AR055: 15, AR039: 15, AR033: 13, AR104: 12, AR061: 12, AR053: 10, AR089: 9, AR060: 9, AR052: 8, AR096: 8 L0748: 2 and H0575: 1.	11q13	102200, 106100,			57-86

49	HE8CX53	597069	59	161 - 514	1464	Gly-28 to Ala-40, Arg-51 to Pro-58, Asp-92 to Leu-97.	AR060: 2, AR055: 2, AR104: 1, AR039: 0, AR052: 0, AR053: 0 L0769: 9, L0752: 6, L0747: 5, L0759: 5, L0764: 4, L0806: 4, L0758: 4, H0549: 3, L0770: 3, L0783: 3, L0750: 3, S0408: 2, H0687: 2, L0771: 2, L0662: 2, L0794: 2, L0775: 2, L0805: 2, L0776: 2, L0809: 2, L0666: 2, L0756: 2, L0779: 2, L0757: 2, H0294: 1, S0134: 1, H0664: 1, H0402: 1, H0586: 1, H0486: 1, L0021: 1, H0081: 1, H0012: 1, H0014: 1, H0688: 1, T0006: 1, L0763: 1, L5565: 1, L0761: 1, L0772: 1, L0800: 1, L0773: 1, L0767: 1, L0768: 1, L0766: 1, L0803: 1, L0774: 1, L0659: 1, L0788: 1, L0792: 1, H0520: 1, H0670: 1, L0786: 1, L0777: 1 and L0731: 1.	Xq22.3-q23	131100, 131100, 131100, 133780, 147050, 153700, 161015, 164009, 168461, 168461, 168461, 180721, 180840, 191181, 193235, 209901, 232600, 259700, 259770, 600045, 600319, 600528, 601884	56-72, 1- 17, 76-92
						Gln-28 to Pro-41, Lys-94 to Pro-108.	AR096: 16, AR053: 14, AR055: 14, AR052: 11, AR060: 8, AR089: 8, AR033: 8, AR104: 7,		300046, 300067, 300067, 300121,	

50	HCENB31	597213	60	65 - 508	1465				AR061: 6, AR039: 5 L0439: 5, L0608: 4, L0005: 3, H0013: 3, L0759: 3, L0594: 3, H0329: 2, L0776: 2, S0001: 1, H0156: 1, L0157: 1, H0040: 1, H0264: 1, S0038: 1, H0100: 1, H0538: 1, L0769: 1, H0144: 1, H0547: 1, L0777: 1 and H0008: 1.		300121, 301201, 301835, 311850		
									AR104: 19, AR033: 15, AR039: 5, AR061: 5, AR053: 5, AR096: 5, AR052: 4, AR055: 4, AR089: 4, AR060: 3 H0052: 3, S0001: 2, S0222: 1, H0194: 1, L0157: 1, L0369: 1, L0769: 1, L0767: 1, L0794: 1, H0144: 1 and L0438: 1.	9q22.1- q22.3	162400, 227645, 229700, 278700, 601309, 601309, 602014, 602088	42-60, 4- 22	
51	H7TME55	597832	61	151 - 498	1466	Val-40 to Tyr-45.			AR053: 1, AR055: 1, AR096: 1, AR089: 1, AR061: 0, AR060: 0, AR104: 0, AR033: 0, AR052: 0, AR039: 0 S0184: 26 and S0186: 8.	10q11.2- q21.1	129010, 154545, 164761, 164761, 164761, 164761, 188550, 601386, 601493	47-66, 16- 32	

52	HDHMA49	600734	62	75 - 539	1467	Ser-15 to His-22, Pro-46 to Pro-52, Gly-63 to Ser-69, Arg-111 to Ser-116, Pro-121 to Asn-129, Ala-136 to Gly-145.	AR060: 18, AR055: 16, AR104: 14, AR061: 14, AR033: 11, AR089: 11, AR039: 7, AR096: 6, AR053: 5, AR052: 4 L0439: 13, L0438: 6, H0052: 3, H0009: 2, L0769: 2, L0794: 2, L0741: 2, H0229: 1, H0572: 1, H0569: 1, L0770: 1, L0796: 1, L5566: 1, L0805: 1, L0789: 1 and L0786: 1.			80-111
53	HBXBG68	610609	63	18 - 362	1468		AR096: 5, AR055: 3, AR039: 2, AR061: 2, AR033: 2, AR089: 2, AR104: 2, AR052: 2, AR060: 1, AR053: 1 S0038: 1			60-77
54	HGBFC53	613240	64	122 - 472	1469	Thr-8 to Glu-13, Thr-89 to Leu-96.	AR033: 10, AR055: 9, AR104: 6, AR052: 5, AR089: 5, AR096: 5, AR060: 5, AR061: 4, AR053: 4, AR039: 2 L0757: 13, L0759: 7, L0747: 6, T0010: 5, L0748: 5, L0770: 4, L0764: 4, L0750: 4, H0031: 3, L0438: 3, L0756: 3, L0758: 3, H0013: 2, S0010: 2, H0135:			100-116, 14-30



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									1, L0809: 1, L0543: 1, L0647: 1, L0665: 1, H0698: 1, S0374: 1, H0520: 1, H0689: 1, H0682: 1, H0521: 1, S0028: 1, L0742: 1, L0740: 1, L0751: 1, L0749: 1, L0752: 1, S0031: 1, H0445: 1, L0596: 1, L0588: 1, L0593: 1, L0603: 1, H0667: 1 and H0542: 1.				
55	HPMCK47	613734	65	336 - 767	1470	Thr-91 to Pro-97.			AR055: 8, AR060: 5, AR061: 4, AR089: 4, AR033: 4, AR096: 4, AR039: 3, AR053: 3, AR104: 2, AR052: 2, L0754: 7, H0644: 4, H0031: 2, L0748: 1, L0747: 1 and H0543: 1.				107-139
56	HAPNX53	613777	66	5 - 478	1471	Ala-15 to Glu-26, Lys-33 to Ser-47, Cys-53 to Thr-60, Cys-119 to Trp-127.			AR055: 7, AR061: 6, AR060: 5, AR096: 4, AR033: 4, AR052: 3, AR089: 3, AR053: 3, AR104: 2, AR039: 2, H0575: 4, H0271: 3, H0250: 1 and L0599: 1.				61-97
57	HOFAE02	614169	67	129 - 434	1472	Thr-10 to Ala-20, Asp-82 to Asn-102.			AR033: 7, AR060: 4, AR096: 3, AR089: 3, AR053: 3, AR061: 3, AR052: 2, AR055: 1,				21-42, 44- 66

58	HSLIQ83	614801	68	16 - 525	1473			AR104: 1, AR039: 0 S0136: 7, S0356: 2, S0410: 2, H0486: 2, H0672: 2, H0170: 1, H0657: 1, H0692: 1, H0254: 1, H0402: 1, H0305: 1, S0358: 1, H0619: 1, L0717: 1, H0406: 1, H0415: 1, H0599: 1, S0010: 1, T0115: 1, H0545: 1, S0051: 1, H0617: 1, H0264: 1, H0100: 1, L0659: 1, L0789: 1, L0665: 1, H0519: 1, H0414: 1, S0406: 1, H0422: 1 and H0352: 1. AR055: 5, AR033: 5, AR060: 4, AR104: 4, AR053: 4, AR089: 3, AR052: 3, AR061: 3, AR096: 2, AR039: 1 L0439: 6, L0438: 3, L0809: 2, L0748: 2, H0583: 1, S0001: 1, T0010: 1, L0456: 1, H0598: 1, L0761: 1, L0783: 1, S0028: 1, L0749: 1, L0756: 1, S0458: 1 and H0352: 1.			143-159	
59	HNTMD04	615231	69	234 - 593	1474	Ser-19 to Val-24, Pro-35 to Asn-42, Pro-44 to Gly-59,	AR039: 6, AR053: 4, AR052: 3, AR033: 3, AR096: 3, AR055: 3,			78-96		

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63	HOSCV06	619875	73	57 - 407	1478	Val-45 to Glu-52, Ala-82 to Ala-93, Pro-103 to Asp-108.	S0001: 2, H0730: 2, L0581: 2, H0713: 1, H0735: 1, H0164: 1 and S0028: 1, AR039: 25, AR055: 11, AR033: 10, AR053: 10, AR096: 9, AR060: 9, AR052: 9, AR089: 9, AR104: 8, AR061: 6 S0003: 1, L0498: 1 and L0599: 1.			196, 161- 177
64	HMCHS27	620219	74	1 - 519	1479	Arg-78 to Glu-84, Leu-94 to Trp-102, Lys-113 to Thr-118.	AR055: 10, AR052: 9, AR053: 8, AR033: 7, AR089: 6, AR060: 6, AR096: 4, AR061: 4, AR104: 1, AR039: 0 H0441: 1, H0409: 1 and S0344: 1.			46-64, 130-146
65	HEMFC09	625334	75	221 - 670	1480		AR060: 2, AR039: 1, AR053: 1, AR104: 1, AR033: 1, AR096: 1, AR089: 1, AR061: 1, AR055: 0, AR052: 0 L0755: 3, S0003: 2, H0521: 2, S0470: 1, S0354: 1, S0444: 1, S0360: 1, S0046: 1, H0574: 1, S0010: 1, H0046: 1, L0471: 1, H0051: 1, H0553: 1, H0646: 1, S0210: 1, H0529: 1,			81-99, 34- 50

66	HNTRJ16	625432	76	25 - 798	1481	Glu-90 to Asn-95, Arg-101 to Lys-108.	L0662: 1, H0659: 1, H0658: 1, H0539: 1, H0436: 1, L0758: 1, L0599: 1, S0192: 1, S0276: 1 and H0423: 1. AR053: 3, AR052: 3, AR096: 2, AR033: 2, AR055: 2, AR089: 2, AR060: 1, AR061: 1, AR104: 1, AR039: 0 L0748: 4, L0749: 3, H0529: 2, L0439: 2, H0624: 1, T0002: 1, H0295: 1, H0638: 1, H0619: 1, H0013: 1, H0581: 1, H0263: 1, H0457: 1, H0688: 1, H0644: 1, H0090: 1, H0551: 1, T0067: 1, H0561: 1, H0538: 1, L0500: 1, L0646: 1, L0794: 1, L0803: 1, L0790: 1, L0666: 1, L0664: 1, H0547: 1, H0690: 1, H0435: 1, H0696: 1, S0044: 1, L0779: 1, L0752: 1, L0596: 1, L0485: 1, L0593: 1 and S0384: 1.				57-73
67	HKAEl09	625517	77	272 - 571	1482	Ala-25 to Phe-44.	AR096: 2, AR055: 2, AR089: 1, AR104: 1, AR061: 0, AR033: 0, AR060: 0, AR052: 0.				79-95

68	HKMMS65	625566	78	22 - 414	1483	Tyr-49 to Arg-55.	AR039: 0, AR053: 0 H0083: 1, H0494: 1, L0776: 1, L0744: 1 and L0777: 1. AR033: 7, AR089: 5, AR060: 4, AR039: 3, AR055: 3, AR053: 3, AR061: 3, AR052: 3, AR096: 2, AR104: 1 H0265: 2, H0431: 2, H0486: 2, H0004: 2, H0624: 1, H0716: 1, H0657: 1, S0222: 1, H0083: 1, S0214: 1, H0628: 1, L0809: 1, H0547: 1, L0748: 1, L0439: 1, L0749: 1, L0485: 1 and H0543: 1.	56-72, 18- 34
69	HNHGE09	625622	79	92 - 517	1484	Pro-13 to His-18, Pro-20 to Lys-27, Ala-29 to Pro-47, Lys-69 to Arg-75, Ser-77 to Ser-85.	AR096: 2, AR089: 1, AR039: 1, AR033: 1, AR061: 1, AR104: 0, AR060: 0, AR052: 0, AR055: 0 S0053: 2	46-64
70	HTTCT34	626178	80	44 - 361	1485	Phe-42 to Tyr-50.	AR055: 6, AR061: 3, AR052: 3, AR060: 3, AR096: 3, AR033: 3, AR053: 2, AR089: 2, AR039: 2, AR104: 1 H0040: 3	50-70, 20- 42

71	HBIAS14	637714	81	751 - 1185	1486	Arg-133 to Lys-145:	AR033: 164, AR055: 129, AR061: 128, AR060: 117, AR089: 90, AR039: 62, AR052: 41, AR104: 40, AR053: 30, AR096: 23 L0805: 9, S0010: 2, S6024: 1, S0134: 1, H0733: 1, S0132: 1, H0592: 1, T0048: 1, S0474: 1, S0049: 1, H0196: 1, H0052: 1, H0673: 1, S0450: 1, L0776: 1, L0809: 1, H0723: 1, S3012: 1, S3014: 1, L0743: 1, L0744: 1, L0748: 1, L0758: 1 and L0599: 1.			7-27, 114- 130, 88- 104, 31- 47, 61-77
72	HLHSC60	638175	82	354 - 722	1487		AR096: 35, AR089: 31, AR104: 25, AR060: 17, AR033: 16, AR052: 15, AR039: 14, AR053: 13, AR055: 10, AR061: 6 H0556: 3, H0208: 3, H0050: 3, L0471: 3, H0179: 3, H0644: 3, S0344: 3, H0521: 3, L0439: 3, S0420: 2, S0360: 2, H0619: 2, H0599: 2, H0264: 2, H0280: 2, S0210: 2, H0547: 2, H0658: 2, L0750: 2, L0731: 2, L0588: 2, L0604: 2, H0543: 2, H0265: 1, T0002:			86-105, 12-29, 55- 71



73	H6ESA95	638229	83	427 - 894	1488	Gln-7 to Arg-12, Pro-69 to Glu-76,	1, H0140: 1, S0114: 1, H0341: 1, S0001: 1, H0669: 1, H0662: 1, H0306: 1, S0418: 1, S0408: 1, H0580: 1, L0717: 1, H0549: 1, H0453: 1, H0592: 1, H0497: 1, H0632: 1, T0039: 1, T0112: 1, H0575: 1, H0036: 1, H0309: 1, H0544: 1, H0172: 1, H0123: 1, H0620: 1, H0024: 1, H0051: 1, H0188: 1, H0615: 1, H0604: 1, H0031: 1, L0456: 1, H0124: 1, H0376: 1, S0036: 1, H0059: 1, H0100: 1, T0041: 1, T0042: 1, S0440: 1, S0150: 1, H0646: 1, H0538: 1, L0637: 1, L0551: 1, L0803: 1, L0659: 1, L0789: 1, L0663: 1, L0438: 1, H0520: 1, H0519: 1, S0126: 1, H0689: 1, H0651: 1, H0539: 1, S0152: 1, S0028: 1, L0748: 1, L0777: 1, L0753: 1, H0343: 1, L0591: 1, L0592: 1, L0593: 1, H0423: 1, H0422: 1, H0506: 1 and H0008: 1.				136-153, 18-34
						AR055: 17, AR033: 17, AR052: 13, AR061: 13,					

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74	HKMAA36	638339	84	169 - 888	1489	Lys-126 to Phe-135, Asn-153 to Ala-168, Thr-185 to Val-196.	H0691: 1, H0435: 1, H0436: 1, H0478: 1, L0750: 1, L0731: 1, L0757: 1, H0445: 1, L0601: 1, H0653: 1, H0543: 1 and S0424: 1. AR104: 504, AR061: 378, AR060: 336, AR055: 296, AR033: 203, AR039: 173, AR089: 171, AR052: 122, AR053: 103, AR096: 94 S0358: 11, H0494: 9, S0354: 7, S0442: 6, H0593: 6, S0444: 5, S0408: 3, H0370: 3, H0039: 3, S0434: 3, H0616: 2, H0059: 2, L0518: 2, S0374: 2, H0435: 2, H0696: 2, L0596: 2, H0484: 1, S0376: 1, S0360: 1, H0042: 1, H0292: 1, H0328: 1, H0673: 1, S0015: 1, S0440: 1, H0647: 1, L0809: 1, H0689: 1, H0672: 1, S0044: 1, S0406: 1, L0601: 1, H0506: 1 and L0600: 1.	78-112, 1- 36, 49-77, 213-232, 105-121, 29-45
75	HLTFA02	638553	85	259 - 996	1490	Lys-5 to Thr-16, Thr-23 to His-28, Gly-111 to Leu-121, Pro-128 to Ile-137.	AR039: 2, AR052: 1, AR033: 1, AR055: 1, AR089: 1, AR104: 1, AR096: 1, AR061: 1,	191-207, 139-155

							AR060: 1, AR053: 0 L0747: 6, L0766: 4, L0749: 4, L0362: 4, H0046: 3, L0666: 3, S0126: 3, S0132: 2, H0013: 2, L0758: 2, L0596: 2, H0624: 1, H0341: 1, S0001: 1, S0360: 1, S0408: 1, S0278: 1, H0370: 1, T0114: 1, H0083: 1, H0553: 1, H0606: 1, H0090: 1, H0038: 1, H0616: 1, H0269: 1, H0059: 1, H0561: 1, H0641: 1, S0142: 1, L0520: 1, L0641: 1, L0764: 1, L0805: 1, L0526: 1, L0664: 1, H0702: 1, H0659: 1, H0658: 1, H0660: 1, H0666: 1, S0330: 1, H0539: 1, H0696: 1, S0406: 1, S3014: 1, S0027: 1, L0777: 1, L0755: 1, L0731: 1, L0759: 1, L0589: 1, H0136: 1, H0422: 1 and S0452: 1.				
76	HISBE12	645267	86	48 - 1193	1491	Leu-50 to Lys-58, Lys-64 to Leu-71, His-89 to Thr-94, Pro-102 to Trp-110, Tyr-162 to Cys-169, Asp-367 to Ala-377.	AR060: 6, AR096: 5, AR089: 5, AR052: 5, AR053: 3, AR033: 3, AR055: 1, AR061: 1, AR104: 1, AR039: 0 H0539: 8, H0046: 3,			180-210, 257-282, 326-349, 116-134, 308-325, 12-28	

77	HEBAE43	645268	87	62 - 520	1492	Glu-9 to Arg-15, Pro-71 to Lys-79.	H0039: 2, H0553: 2, H0090: 2, L0750: 2, L0605: 2, S0282: 1, H0431: 1, H0036: 1, H0421: 1, H0196: 1, T0003: 1, S0628: 1, H0252: 1, H0031: 1, H0111: 1, H0591: 1, H0412: 1, T0068: 1, S0044: 1, L0752: 1, H0445: 1 and L0581: 1. AR104: 44, AR033: 31, AR061: 18, AR060: 15, AR055: 14, AR039: 12, AR089: 12, AR096: 10, AR053: 9, AR052: 6 S0007: 3, H0038: 2, S0344: 2, L0750: 2, T0002: 1, H0125: 1, S0420: 1, S0358: 1, S0046: 1, H0411: 1, S0278: 1, H0085: 1, H0545: 1, H0031: 1, H0182: 1, H0646: 1, H0134: 1, S0031: 1, L0591: 1, H0423: 1 and H0422: 1.				19-51, 100-116, 120-136, 41-57
78	HSBBC07	655007	88	158 - 646	1493	Met-1 to Val-12.	AR053: 51, AR052: 50, AR089: 25, AR055: 25, AR033: 17, AR061: 14, AR060: 12, AR096: 12, AR104: 1, AR039: 0				117-133

79	HL2AE73	655590	89	18 - 329	1494	Pro-16 to Lys-21.	AR055: 10, AR060: 9, AR096: 8, AR053: 8, AR039: 8, AR089: 7, AR104: 7, AR061: 6, AR052: 5, AR033: 5 H0131: 2, S0002: 2, H0664: 1, H0586: 1, H0574: 1, H0563: 1, H0028: 1 and S0428: 1.			78-95, 1- 17, 52-68
80	HE2OO57	656211	90	344 - 18	1495	Val-7 to Met-23, Leu-41 to Lys-46.	AR052: 30, AR053: 25, AR096: 23, AR055: 18, AR089: 16, AR060: 12, AR033: 10, AR061: 8, AR104: 6, AR039: 5 L0756: 2, H0170: 1, H0441: 1, S0051: 1, T0010: 1, H0436: 1 and L0779: 1.			89-107
81	HEEAR13	656288	91	51 - 395	1496	Asp-14 to Leu-22.	AR055: 44, AR039: 39, AR053: 24, AR033: 20, AR052: 18, AR089: 17, AR104: 16, AR096: 14, AR060: 13, AR061: 12 L0748: 5, L0157: 3, L0777: 2, H0549: 1, H0617: 1, L0638: 1, L0774: 1, L0775: 1, H0144: 1 and L0755: 1.			23-68, 23- 41
82	HFIYLL13	656815	92	228 - 722	1497	Gln-18 to Tyr-24, Gln-94 to Glu-100.	AR039: 8, AR033: 5, AR053: 5, AR096: 4,			131-151, 64-80, 34-

83	HLWBH14	658066	93	102 - 542	1498			AR052: 4, AR104: 4, AR089: 4, AR055: 3, AR060: 3, AR061: 3 L0766: 3, H0413: 2, L0794: 2, H0659: 2, H0591: 1, T0042: 1, H0494: 1, L0769: 1, L0667: 1, L0800: 1, L0662: 1, L0666: 1, H0658: 1, L0748: 1, L0755: 1, L0731: 1, L0758: 1, H0444: 1, S0242: 1 and H0542: 1.				50
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84	HATDW51	659283	94	579 - 878	1499				L0803: 1, L0782: 1, L0791: 1, L0532: 1, L0777: 1, H0444: 1, L0596: 1, S0026: 1 and H0653: 1. AR033: 7, AR053: 4, AR055: 4, AR052: 3, AR096: 3, AR089: 3, AR060: 3, AR061: 2, AR039: 2, AR104: 1 L0766: 4, L0758: 4, L0646: 2, L0805: 2, H0670: 2, L0745: 2, L0756: 2, L0759: 2, H0351: 1, H0156: 1, H0328: 1, H0652: 1, L0520: 1, L0771: 1, L0648: 1, L0794: 1, L0774: 1, L0438: 1, L0439: 1, L0740: 1, L0747: 1 and S0412: 1.			52-74, 34-50, 75-91
85	HDPWQ69	659380	95	22 - 444	1500	Phe-68 to Ser-77, Lys-79 to Thr-90, Cys-107 to Leu-114, Pro-116 to Trp-121, Pro-124 to Asn-133.			AR052: 29, AR053: 25, AR096: 23, AR089: 12, AR055: 8, AR033: 6, AR061: 4, AR060: 4, AR104: 0, AR039: 0 L0805: 25, L0157: 7, L0776: 7, S0474: 5, L0731: 5, H0457: 4, L0748: 4, L0747: 4, S0278: 3, H0538: 3, S0404: 3, S0476: 2, H0619: 2, H0009: 2, H0529:			47-64



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87	HAIDY03	660532	97	37 - 537	1502	Met-1 to Lys-7,	1, H0662: 1, S0418: 1, S0376: 1, S0045: 1, S0046: 1, H0411: 1, H0369: 1, H0550: 1, H0438: 1, H0602: 1, T0040: 1, H0013: 1, H0427: 1, S0280: 1, H0590: 1, H0390: 1, S0474: 1, H0052: 1, T0110: 1, H0545: 1, H0178: 1, H0562: 1, H0123: 1, H0373: 1, H0201: 1, H0355: 1, S0003: 1, H0615: 1, H0428: 1, T0006: 1, H0031: 1, H0553: 1, H0032: 1, S0036: 1, H0163: 1, H0551: 1, L0564: 1, L0370: 1, S0370: 1, S0450: 1, L0769: 1, L0637: 1, L5565: 1, L0372: 1, L0773: 1, L0650: 1, L0806: 1, L0527: 1, L0526: 1, L0783: 1, L0809: 1, S0374: 1, H0520: 1, H0682: 1, H0659: 1, S0328: 1, S0330: 1, H0539: 1, S0380: 1, L0602: 1, S0152: 1, H0555: 1, L0753: 1, L0755: 1, L0759: 1, S0260: 1, S0434: 1, S0436: 1, L0366: 1, H0667: 1 and S0242: 1, AR055: 31, AR060: 21,				58-75
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88	HDPDO12	661436	98	376 - 35	1503	Thr-107 to Asn-114.	Pro-9 to Ser-19, Pro-30 to Ser-38, Arg-89 to Glu-95, Leu-105 to Trp-113, Lys-124 to Thr-129.	AR033: 20, AR061: 15, AR089: 13, AR053: 12, AR052: 11, AR104: 7, AR096: 6, AR039: 4 L0766: 5, L0803: 3, L0748: 3, L0740: 3, L0758: 3, S0408: 2, H0032: 2, H0124: 2, L0771: 2, L0809: 2, L0665: 2, S0330: 2, L0750: 2, L0756: 2, L0731: 2, L0759: 2, H0254: 1, H0638: 1, S0420: 1, S0358: 1, S0132: 1, H0013: 1, S0010: 1, H0563: 1, H0510: 1, H0416: 1, H0687: 1, S0003: 1, H0328: 1, H0591: 1, H0413: 1, H0207: 1, H0538: 1, S0422: 1, S0426: 1, L0763: 1, L0769: 1, L0796: 1, L0667: 1, L0643: 1, L0648: 1, L0794: 1, L0805: 1, L0776: 1, L0655: 1, L0783: 1, L0367: 1, L0664: 1, H0144: 1, H0519: 1, H0690: 1, H0658: 1, H0672: 1, H0518: 1, H0696: 1, S0044: 1, L0439: 1, L0747: 1, L0752: 1, S0192: 1 and H0422: 1.					44-72, 69-
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									AR033: 2, AR060: 2, AR089: 1, AR052: 1, AR055: 1, AR104: 1, AR061: 0, AR039: 0 H0693: 8, L0755: 2, L0731: 2, H0341: 1, S0222: 1, L0769: 1, L0800: 1, L0665: 1, S0216: 1 and H0521: 1.				85, 13-29
89	HAGBC45	661694	99	51 - 860	1504	Pro-29 to Lys-34, Ser-91 to Thr-97.			AR055: 6, AR033: 4, AR096: 3, AR052: 3, AR061: 3, AR089: 3, AR060: 3, AR053: 3, AR039: 2, AR104: 0 L0777: 7, L0750: 6, L0748: 5, L0779: 4, L0805: 2, L0517: 2, L0439: 2, L0740: 2, L0747: 2, L0759: 2, H0580: 1, S0010: 1, T0003: 1, H0622: 1, S0036: 1, L0764: 1, L0803: 1, H0144: 1, S3014: 1, L0749: 1 and L0758: 1.			179-199	
90	HNTNT65	662513	100	85 - 480	1505	Val-4 to Thr-11, Ile-15 to Asn-20, Arg-35 to Lys-44.			AR089: 3, AR053: 3, AR052: 2, AR096: 2, AR104: 2, AR039: 2, AR055: 2, AR033: 2, AR060: 1, AR061: 1 H0651: 8, L0744: 7,			50-70	

	L0748: 6, H0620: 4, S0360: 3, S0142: 3, L0755: 3, H0638: 2, H0052: 2, H0123: 2, H0083: 2, H0328: 2, H0615: 2, H0039: 2, H0424: 2, H0163: 2, H0040: 2, H0059: 2, L0659: 2, L0519: 2, L0438: 2, S0378: 2, S0312: 2, S014: 2, L0743: 2, L0750: 2, L0758: 2, L0589: 2, H0656: 1, H0662: 1, S0420: 1, S0358: 1, S0408: 1, H0637: 1, S0222: 1, H0574: 1, S0280: 1, L0021: 1, H0544: 1, H0546: 1, H0545: 1, H0081: 1, H0012: 1, H0266: 1, H0188: 1, H0687: 1, H0288: 1, H0292: 1, H0252: 1, H0673: 1, S0036: 1, H0100: 1, H0641: 1, S0144: 1, S0002: 1, L0761: 1, L0643: 1, L0662: 1, L0650: 1, L0774: 1, L0375: 1, L0805: 1, L0776: 1, L0783: 1, L0793: 1, L0665: 1, S0053: 1, H0520: 1, H0658: 1, H0672: 1, H0522: 1, S0406: 1, H0436: 1, S0037: 1, L0747: 1, L0749: 1, L0779: 1.
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91	HTTAA50	665234	101	825 - 1148	1506	Asn-87 to Asn-92.	L0731: 1, S0031: 1, S0434: 1 and L0366: 1. AR096: 6, AR052: 4, AR060: 4, AR055: 4, AR033: 4, AR039: 4, AR104: 3, AR089: 3, AR053: 3, AR061: 3 L0766: 4, L0748: 4, L0747: 4, L0752: 3, L0759: 3, S0212: 1, S0356: 1, H0574: 1, L0105: 1, H0188: 1, H0040: 1, L0772: 1, L0774: 1, S0328: 1, L0749: 1, L0755: 1, L0596: 1 and H0667: 1.	6q22.1-22.3	120110, 121014, 142470, 156225, 164200, 164200, 601316, 601410, 601757	8-35, 38- 56, 59-75
92	HAGBX32	666416	102	102 - 512	1507	Pro-27 to Ala-37.	AR033: 8, AR053: 5, AR052: 5, AR089: 5, AR060: 4, AR096: 4, AR055: 3, AR104: 3, AR061: 3, AR039: 1 L0439: 4, L0418: 1, S0010: 1, L0455: 1, S0028: 1 and L0741: 1.	16p12-p13.1	108730, 147781, 172471, 186580, 264800, 266600, 278760, 600760, 600760, 600761, 600761, 602066	45-69, 76- 101, 115- 131
93	HHTMM1 8	666429	103	112 - 543	1508	Glu-98 to Gln-106.	AR089: 28, AR039: 26, AR096: 25, AR052: 16,			41-57

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96	HWBBB21	670586	106	34 - 627	1511	Tyr-35 to Gln-42, Asp-141 to Gly-160.	AR055: 0, AR089: 0, AR053: 0, AR104: 0, AR052: 0, AR039: 0 H0036: 1, L0471: 1, H0373: 1, L0804: 1 and H0665: 1.				59-75, 1- 17, 104- 120, 169- 185
97	HAIDX85	672653	107	246 - 1880	1512	Arg-54 to Trp-62, Pro-68 to Ile-77, Asn-124 to Ala-130, Arg-155 to Lys-161, Ser-166 to Glu-178, Ile-407 to Ser-413, Pro-494 to Met-507, Pro-510 to Asp-516.	AR096: 7, AR053: 5, AR039: 5, AR060: 3, AR052: 3, AR104: 3, AR089: 3, AR033: 2, AR061: 1, AR055: 0 H0580: 1, T0042: 1, S0002: 1 and L0439: 1. AR033: 8, AR055: 7, AR060: 6, AR089: 4, AR052: 4, AR061: 3, AR096: 3, AR053: 2, AR104: 1, AR039: 1 H0038: 4, H0124: 2, H0561: 2, H0539: 2, S0276: 2, H0294: 1, S0212: 1, S0132: 1, H0431: 1, S0005: 1, H0544: 1, H0123: 1, H0266: 1, H0288: 1, H0039: 1, H0040: 1, H0547: 1, H0519: 1, S0044: 1, H0555: 1 and S0242: 1.				370-406, 10-38, 430-456, 262-279, 338-354, 303-320, 232-250, 476-492, 105-121, 180-196
98	HMMAV0 6	675380	108	10 - 618	1513		AR096: 4, AR089: 2, AR053: 2, AR052: 2,				54-71

99	HISAM25	677920	109	291 - 680	1514	Ile-52 to Ser-59, Arg-106 to Asn-111, Gln-122 to Lys-130.		AR033: 2, AR055: 2, AR060: 2, AR061: 1, AR039: 1, AR104: 1 L0766: 3, H0413: 2, L0794: 2, H0659: 2, H0581: 1, S0314: 1, H0591: 1, T0042: 1, H0494: 1, L0769: 1, L0667: 1, L0800: 1, L0662: 1, L0666: 1, H0414: 1, H0658: 1, L0748: 1, L0755: 1, L0731: 1, L0758: 1, H0444: 1, S0242: 1 and H0542: 1.				79-104
100	HRDX93	678316	110	408 - 725	1515	Pro-13 to Arg-23.		AR033: 3, AR104: 2, AR096: 2, AR053: 2, AR039: 2, AR089: 1, AR052: 1, AR060: 1, AR061: 1, AR055: 0 L0769: 3, L0747: 3, L0759: 3, L0783: 2, L0438: 2, H0539: 2, L0439: 2, L0758: 2, L0589: 2, L0717: 1, L0598: 1, L0520: 1, L0794: 1, L0375: 1, H0144: 1 and L0779: 1.				59-75, 84- 100, 23-39

101	HLJDK82	678819	111	238 - 1713	1516	Asp-23 to Glu-28, Ser-49 to Pro-54, Glu-61 to Thr-67, Glu-72 to Asp-81, Glu-83 to Asp-118, Gly-156 to Arg-162, Asp-184 to Tyr-205, Met-251 to Asp-257, Gln-273 to Asp-278, Ser-284 to Tyr-293, Phe-333 to Ser-338, Lys-351 to Arg-357, Gly-367 to Asp-375, Asn-399 to Glu-414, Gln-424 to Arg-443, Glu-447 to Glu-457, Arg-462 to Lys-476, Lys-485 to Phe-492.	AR096: 22, AR039: 20 H0052: 1 and H0598: 1, AR089: 3, AR033: 2, AR060: 2, AR052: 2, AR053: 1, AR061: 1, AR055: 1, AR096: 0, AR039: 0 L0748: 11, L0749: 9, S0408: 6, S0002: 4, L0776: 4, H0521: 4, L0777: 4, S0436: 4, L0588: 4, H0638: 3, S0358: 3, H0575: 3, L0646: 3, S0126: 3, L0758: 3, L0596: 3, H0543: 3, S0282: 2, S0354: 2, S0444: 2, S0360: 2, S0476: 2, T0110: 2, H0046: 2, S0003: 2, L0483: 2, T0042: 2, S0150: 2, S0422: 2, L0763: 2, L0772: 2, L0766: 2, L0803: 2, L0783: 2, L0665: 2, L0438: 2, H0659: 2, S0152: 2, H0704: 2, L0779: 2, L0731: 2, L0759: 2, S0434: 2, L0591: 2, L0599: 2, H0653: 2, H0685: 1, H0583: 1, H0657: 1, H0656: 1, S0116: 1, S0001: 1, H0483: 1, S0442: 1, S0376: 1, S0468: 1, H0619: 1,				137-155, 1-19
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				532			AR060: 3, AR096: 3, AR052: 3, AR053: 2, AR055: 1, AR061: 1, AR104: 0 H0423: 1			28
103	HMWAPI 7	682949	113	373 - 26	1518		AR055: 15, AR039: 14, AR089: 12, AR052: 12, AR033: 11, AR060: 10, AR053: 9, AR061: 9, AR104: 8, AR096: 7 H0666: 13, H0620: 7, L0731: 7, L0747: 6, L0659: 5, L0740: 5, L0750: 5, L0757: 5, S0360: 4, H0123: 4, S0022: 4, H0135: 4, L0666: 4, L0665: 4, S0028: 4, L0748: 4, L0777: 4, L0588: 4, S0420: 3, S0358: 3, H0208: 3, H0545: 3, H0046: 3, H0284: 3, L0650: 3, L0375: 3, L0382: 3, H0352: 3, H0592: 2, H0544: 2, H0024: 2, H0266: 2, H0286: 2, H0252: 2, H0428: 2, H0628: 2, H0551: 2, H0100: 2, S0210: 2, L0763: 2, L0770: 2, L0774: 2, L0661: 2, L0518: 2, H0547: 2, H0670: 2, S0037: 2, L0751: 2, L0752: 2, L0755:			87-105, 31-47

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104	HMCFA76	684293	114	34 - 519	1519	Ala-4 to Phe-9, Thr-155 to Asn-162.	1 and H0667: 1, AR055: 25, AR052: 25, AR053: 22, AR033: 18, AR089: 18, AR060: 15, AR096: 15, AR039: 15, AR061: 14, AR104: 14 L0758: 7, L0766: 5, L0558: 5, L0750: 5, S0360: 4, S0410: 4, L0747: 4, S0007: 3, S0438: 3, L0763: 3, L0769: 3, L0775: 3, S0380: 3, S0404: 3, L0748: 3, L0754: 3, L0749: 3, L0759: 3, H0423: 3, H0661: 2, S0132: 2, H0441: 2, H0494: 2, L0506: 2, L0761: 2, L0554: 2, L0523: 2, L0776: 2, L0526: 2, L0532: 2, L0665: 2, S0126: 2, S0378: 2, H0522: 2, L0742: 2, L0752: 2, L0731: 2, L0757: 2, S0040: 1, H0717: 1, H0294: 1, S0134: 1, H0657: 1, H0381: 1, H0341: 1, H0483: 1, H0669: 1, H0638: 1, S0358: 1, S0444: 1, S0408: 1, H0208: 1, H0351: 1, S0278: 1, H0392: 1, H0333: 1, L0622: 1, H0486: 1, T0039: 1, L0021:				92-120, 117-133, 30-50, 61- 77
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106	HHEDB45	685054	116	180 - 623	1521	Thr-2 to Glu-13, Asn-19 to His-56, His-140 to Pro-148.	H0423: 1. AR039: 6, AR096: 4, AR033: 4, AR053: 4, AR104: 3, AR052: 3, AR089: 3, AR060: 3, AR055: 2, AR061: 2 H0170: 1, H0484: 1, S0360: 1, H0309: 1, H0040: 1, L0611: 1, L0596: 1, H0542: 1 and H0543: 1.	12p12	112410, 113520, 135700, 168470, 186940, 186940, 200990, 602096	70-86
107	HTACX15	685191	117	75 - 965	1522		AR060: 5, AR052: 5, AR089: 4, AR053: 4, AR096: 3, AR055: 3, AR033: 2, AR039: 2, AR061: 2, AR104: 1 L0779: 4, S0360: 3, L0803: 3, L0747: 3, L0758: 3, S0354: 2, H0637: 2, S0422: 2, L0646: 2, L0519: 2, L0665: 2, H0436: 2, L0750: 2, H0657: 1, S0007: 1, S6016: 1, H0415: 1, H0486: 1, H0069: 1, H0427: 1, S0280: 1, H0118: 1, H0014: 1, S0214: 1, H0328: 1, H0615: 1, H0553: 1, H0628: 1, S0440: 1, H0529: 1, L0766: 1, L0650: 1, L0775: 1, L0776: 1, L0655:		47-66, 275-291, 146-162, 99-115	

108	HFIZN55	685340	118	324 - 713	1523			1, L0783: 1, L0809: 1, S0374: 1, H0693: 1, H0658: 1, L0745: 1, L0752: 1, L0731: 1, L0757: 1, L0485: 1 and H0422: 1.				89-106	
109	HCEIU38	685495	119	24 - 1067	1524	Pro-89 to Gly-96, Gly-119 to Leu-125, Thr-135 to Pro-141, Thr-160 to Arg-170, Glu-189 to Glu-196, Asp-229 to Asp-236, Arg-278 to His-286, Asn-337 to Tyr-348.		AR089: 2, AR039: 1, AR055: 1, AR096: 1, AR053: 1, AR104: 1, AR060: 0, AR061: 0, AR033: 0, AR052: 0 L0805: 2, L0749: 2, H0024: 1, H0112: 1, L0803: 1, H0660: 1, S0330: 1, L0748: 1, L0747: 1 and S0242: 1.				301-338, 16-32	

	S0436: 3, H0341: 2, S0476: 2, H0318: 2, H0083: 2, H0591: 2, H0264: 2, L0648: 2, L0803: 2, L0665: 2, L0779: 2, L0595: 2, S0011: 2, H0556: 1, H0717: 1, S0442: 1, S0360: 1, T0008: 1, H0329: 1, S0045: 1, S0278: 1, S0222: 1, H0643: 1, H0156: 1, H0575: 1, H0706: 1, H0390: 1, H0196: 1, H0085: 1, H0041: 1, H0123: 1, H0081: 1, L0471: 1, H0011: 1, H0014: 1, H0373: 1, H0510: 1, H0687: 1, H0288: 1, S0022: 1, H0615: 1, T0023: 1, H0031: 1, S0036: 1, H0038: 1, H0100: 1, T0041: 1, H0560: 1, S0438: 1, S0440: 1, S0344: 1, L0640: 1, L0371: 1, L0796: 1, L0646: 1, L0764: 1, L0773: 1, L0662: 1, L0363: 1, L0364: 1, L0650: 1, L0775: 1, L0784: 1, L0806: 1, L0655: 1, L0606: 1, L0526: 1, L0782: 1, L0783: 1, L4501: 1, L0666: 1, L0664: 1, S0374: 1, S0148: 1, S0126: 1.	
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110	HNFIL36	685604	120	256 - 735	1525				AR089: 0, AR096: 0, AR060: 0, AR061: 0, AR104: 0, AR055: 0, AR052: 0, AR039: 0 L0517: 4, L0769: 3, L0776: 3, L0790: 3, L0743: 2, L0754: 2, H0341: 1, S0442: 1, S0046: 1, S0140: 1, S0132: 1, H0550: 1, H0036: 1, L0031: 1, H0271: 1, H0416: 1, H0428: 1, H0031: 1, L0142: 1, H0617: 1, L0761: 1, L0764: 1, L0805: 1, L0659: 1, H0691: 1, H0519: 1, S0378: 1, H0436: 1, L0748: 1, L0777: 1, L0755: 1, L0758: 1 and L0697: 1.			103-123, 143-160	
111	HSKZB03	686533	121	1521 - 1096	1526	Glu-10 to Thr-15, Arg-33 to Glu-38, Leu-54 to Gly-59,			AR096: 4, AR055: 3, AR061: 3, AR060: 3, AR053: 3, AR052: 3,			62-78, 105-121	

						Gly-86 to Trp-101, Pro-123 to Thr-133.	AR089: 2, AR033: 2, AR104: 2, AR039: 0 S0126: 8, S0420: 6, L0757: 6, S0212: 4, L0777: 4, H0662: 3, L0743: 3, L0608: 3, H0653: 3, H0667: 3, H0546: 2, S0314: 2, H0551: 2, L0564: 2, L0764: 2, L0666: 2, H0660: 2, S0027: 2, L0740: 2, L0754: 2, L0759: 2, L0591: 2, L0595: 2, H0665: 2, S0180: 1, H0661: 1, S0418: 1, S0356: 1, T0007: 1, T0039: 1, T0040: 1, T0114: 1, H0013: 1, L0021: 1, H0599: 1, H0036: 1, H0083: 1, L0669: 1, S0318: 1, S0316: 1, H0284: 1, H0286: 1, S0340: 1, S0250: 1, H0553: 1, S0364: 1, H0413: 1, H0494: 1, S0150: 1, L0763: 1, L0775: 1, L0776: 1, L0657: 1, L0790: 1, H0689: 1, H0690: 1, H0658: 1, S3012: 1, S0037: 1, S3014: 1, S0028: 1, L0780: 1, L0731: 1, H0668: 1, S0194: 1 and S0196: 1.						102-122
112	HNTMZ26	688935	122	12 - 416	1527	Leu-27 to Ser-41.	AR039: 5, AR089: 3,						

113	HHENC76	689978	123	68 - 370	1528	Gly-6 to Gly-14.	AR096: 3, AR052: 3, AR104: 2, AR060: 2, AR053: 1, AR061: 1, AR055: 1, AR033: 1 L0748: 5, H0519: 3, H0486: 2, H0179: 2, H0509: 2, H0521: 2, L0588: 2, L0595: 2, H0624: 1, H0650: 1, H0657: 1, H0656: 1, S0444: 1, H0580: 1, S0046: 1, H0013: 1, H0599: 1, S0474: 1, L0471: 1, H0266: 1, H0188: 1, H0553: 1, S0364: 1, H0038: 1, T0067: 1, H0561: 1, H0633: 1, L0637: 1, H0144: 1, H0520: 1, H0547: 1, H0539: 1, S0378: 1, L0602: 1, S0146: 1, S3014: 1, L0756: 1, L0759: 1, L0480: 1, L0596: 1, L0608: 1, S0026: 1, H0542: 1, H0543: 1 and H0506: 1.				36-70, 25-41, 67-83
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114	HHSGJ30	691490	124	110 - 427	1529	Ser-25 to Lys-32, Glu-63 to Gly-68.	2, S0152: 2, L0595: 2, H0543: 2, H0583: 1, H0346: 1, T0109: 1, L0767: 1, L0768: 1, H0521: 1, L0745: 1 and S0194: 1.					33-61	
115	HE8EQ09	695741	125	135 - 1184	1530	Gln-153 to Ser-163, Ser-172 to Glu-178, Ala-204 to Asp-210, Ile-222 to Ala-236, Lys-284 to Ser-291, Met-342 to Arg-348.	AR039: 31, AR033: 26, AR104: 25, AR053: 22, AR052: 19, AR055: 19, AR089: 14, AR060: 13, AR096: 11, AR061: 10 L0439: 3, L0438: 2, L0756: 2 and S0388: 1. AR033: 29, AR104: 25, AR060: 22, AR096: 17, AR089: 16, AR052: 13, AR039: 11, AR055: 9, AR053: 8, AR061: 5 L0752: 30, L0754: 17, L0740: 16, H0521: 14, L0439: 14, L0766: 12, S0003: 11, S0214: 11, L0777: 10, S0002: 8, L0776: 8, L0748: 8, L0755: 8, S0360: 7, L0665: 7, L0757: 7, T0067: 6, S0440: 6, L0770: 6, L0666: 6, L0747: 6, L0774: 5, L0751: 5, S0222: 4, H0575: 4, H0622: 4, L0662: 4, L0775:	X				300-328, 1-21, 180- 196	



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116	HJKSC77	698634	126	26 - 499	1531	Ala-8 to Ser-15, His-36 to Glu-44,	1, H0438: 1, H0013: 1, S0010: 1, S0665: 1, S0474: 1, H0327: 1, H0046: 1, L0157: 1, S0051: 1, T0010: 1, H0266: 1, H0179: 1, H0615: 1, H0096: 1, H0031: 1, H0553: 1, L0055: 1, H0674: 1, H0163: 1, H0038: 1, H0264: 1, H0413: 1, L0564: 1, H0560: 1, H0359: 1, H0509: 1, S0142: 1, S0344: 1, UNKWN: 1, L0369: 1, L0762: 1, L0371: 1, L0796: 1, L0761: 1, L0373: 1, L0773: 1, L0521: 1, L0794: 1, L0803: 1, L0804: 1, L0784: 1, L0807: 1, L0518: 1, L0647: 1, L5622: 1, L5623: 1, H0144: 1, H0684: 1, H0659: 1, H0658: 1, S0330: 1, S0152: 1, H0696: 1, S0404: 1, S0037: 1, L0746: 1, L0779: 1, S0031: 1, H0707: 1, S0434: 1, L0480: 1, L0608: 1, L0604: 1, S0011: 1, S0192: 1, S0456: 1 and H0506: 1.					139-158, 110-126
						AR033: 7, AR052: 6, AR104: 5, AR060: 5,						

Arg-65 to Gln-70, Asp-133 to Glu-138.	AR053: 4, AR089: 4, AR039: 4, AR096: 4, AR055: 3, AR061: 2 S0358: 8, L0777: 8, L0779: 6, L0362: 6, L0766: 5, L0752: 5, L0775: 4, L0803: 3, L0759: 3, H0171: 2, H0657: 2, S0222: 2, H0441: 2, L0372: 2, L0784: 2, L0809: 2, L0665: 2, S0126: 2, L0740: 2, L0756: 2, L0755: 2, L0758: 2, H0170: 1, S0418: 1, S0360: 1, H0632: 1, H0036: 1, S0010: 1, S0346: 1, L0471: 1, H0014: 1, H0373: 1, H0266: 1, S0334: 1, H0328: 1, H0316: 1, S0036: 1, H0412: 1, H0202: 1, S0440: 1, S0150: 1, H0646: 1, S0422: 1, L0763: 1, L0638: 1, L0764: 1, L0773: 1, L0662: 1, L0649: 1, L0804: 1, L0774: 1, L0666: 1, H0144: 1, H0691: 1, H0547: 1, H0519: 1, H0690: 1, H0683: 1, H0660: 1, S0136: 1, S0404: 1, S0406: 1, S0028: 1, L0754: 1, L0749: 1, L0750: 1, L0731: 1,
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119	HMWTW4 6	703503	129	534 - 1145	1534	Glu-49 to Gln-55, Asn-115 to Gln-136, Glu-154 to Asn-169, Ser-183 to Asn-191.	L0655: 1, L0607: 1, L0661: 1, L0659: 1, L0809: 1, L0787: 1, L0664: 1, S0052: 1, S0053: 1, H0698: 1, H0701: 1, S0330: 1, S0378: 1, H0521: 1, H0214: 1, L0756: 1, L0779: 1, L0777: 1, L0755: 1 and H0136: 1. AR055: 10, AR052: 9, AR053: 7, AR060: 6, AR061: 5, AR033: 5, AR096: 5, AR104: 5, AR089: 4, AR039: 3 L0766: 13, L0749: 8, L0776: 6, L0803: 5, L0770: 4, L0805: 4, H0100: 3, L0794: 3, L0789: 3, L0748: 3, L0745: 3, L0779: 3, L0777: 3, T0002: 2, H0090: 2, L0800: 2, L0809: 2, H0134: 2, L0756: 2, L0752: 2, L0758: 2, L0605: 2, H0170: 1, H0556: 1, H0341: 1, H0192: 1, S0476: 1, H0549: 1, S0222: 1, H0587: 1, H0013: 1, H0575: 1, T0103: 1, H0046: 1, H0067: 1, H0266: 1, H0284: 1, T0042: 1, L0796: 1, L0761: 1, L0363: 1, L0768: 1.				82-98
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121	HSLGO34	706987	131	46 - 408	1536	Met-1 to Leu-6, Ala-10 to Tyr-15, Arg-65 to Gln-70, Pro-107 to Glu-116.	L0783: 1, L0383: 1, L0382: 1, L0789: 1, L0666: 1, L0663: 1, H0520: 1, S0126: 1, H0689: 1, S0390: 1, L0751: 1, L0752: 1, L0759: 1, S0031: 1, S0260: 1, S0434: 1, L0597: 1, H0667: 1 and S0424: 1.					80-99
122	HTOJF39	707266	132	214 - 519	1537		AR061: 165, AR033: 29, AR089: 28, AR060: 27, AR052: 5, AR055: 5, AR053: 5, AR096: 5, AR104: 2, AR039: 1 S0222: 2, L0439: 2, S0028: 1 and L0731: 1. AR096: 6, AR053: 5, AR052: 5, AR055: 5, AR033: 4, AR060: 3, AR061: 3, AR089: 3, AR104: 2, AR039: 2 L0766: 7, H0521: 3, L0779: 3, H0543: 3, H0580: 2, H0509: 2, L0662: 2, L0803: 2, L0805: 2, H0519: 2, H0539: 2, L0756: 2, L0759: 2, H0542: 2, S0116: 1, S0354: 1, H0637: 1, H0574: 1, H0421: 1, S6028: 1, S0003: 1, S0214: 1,					42-59, 15- 31



123	HPDEF35	707398	133	36 - 362	1538	Ser-21 to Gly-28, Gly-36 to Arg-41, Arg-66 to Tyr-74.	H0688: 1, H0591: 1, H0264: 1, S0210: 1, H0529: 1, L0794: 1, L0804: 1, L0664: 1, S0374: 1, H0672: 1, L0754: 1, H0445: 1, L0604: 1 and S0194: 1.				45-62	
124	HFIAW95	707878	134	129 - 533	1539	Arg-39 to Thr-46.	AR053: 18, AR052: 17, AR055: 15, AR096: 14, AR089: 11, AR060: 9, AR061: 8, AR033: 8, AR104: 7, AR039: 5 H0457: 2, T0023: 1, H0144: 1, H0436: 1 and H0677: 1.				77-95, 5- 21	
125	HMEIU36	708053	135	132 - 635	1540	Ser-108 to Gln-125, Thr-156 to Glu-166.	AR039: 47, AR033: 18, AR053: 16, AR104: 14, AR089: 14, AR096: 14, AR055: 11, AR052: 10, AR060: 10, AR061: 7 L0758: 4, L0731: 2, S0192: 2, H0038: 1 and L0638: 1.	3p21.3			51-68	116806, 120120, 120120, 120120, 120436, 120436, 120436,

	L0754: 9, S0422: 7, S0360: 6, L0794: 6, L0809: 6, L0758: 6, H0265: 5, L0770: 5, L0805: 5, L0666: 5, L0749: 5, L0755: 5, L0731: 5, S0414: 4, H0581: 4, H0271: 4, L0771: 4, L0439: 4, L0591: 4, H0327: 3, H0457: 3, H0266: 3, L0804: 3, L0776: 3, L0659: 3, L0518: 3, L0665: 3, L0751: 3, S0434: 3, S0436: 3, S0412: 3, H0656: 2, S0116: 2, S0212: 2, H0661: 2, S0358: 2, S0132: 2, H0574: 2, H0156: 2, S0010: 2, H0009: 2, H0123: 2, H0087: 2, H0551: 2, L0598: 2, L0763: 2, L0761: 2, L0662: 2, L0766: 2, L0655: 2, L0636: 2, L0664: 2, S0374: 2, H0547: 2, H0660: 2, S0378: 2, H0436: 2, L0750: 2, L0756: 2, L0596: 2, L0603: 2, H0136: 2, H0624: 1, H0556: 1, S0040: 1, H0295: 1, S0114: 1, S0356: 1, S0442: 1, S0376: 1, S0444: 1, H0730: 1, H0208: 1, S0045: 1, S0476: 1,	138320, 168468, 182280, 600163
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									L0742: 1, L0744: 1, L0745: 1, L0747: 1, L0752: 1, L0757: 1, L0759: 1, L0605: 1, L0595: 1, S0026: 1, S0192: 1, H0542: 1, H0543: 1, H0423: 1, H0422: 1, S0042: 1, S0462: 1 and H0008: 1.				192-213, 174-190
126	HHEDM89	708177	136	30 - 668	1541	Ser-76 to Ser-82.			AR053: 3, AR096: 3, AR039: 2, AR052: 2, AR104: 2, AR033: 2, AR089: 2, AR060: 1, AR055: 1, AR061: 1, L0779: 5, L0157: 2, L0803: 2, L0754: 2, L0595: 2, H0305: 1, H0589: 1, H0638: 1, H0351: 1, H0486: 1, L0021: 1, H0318: 1, H0596: 1, S0150: 1, S0144: 1, L0364: 1, L0766: 1, L0809: 1, L0532: 1, H0667: 1 and H0542: 1.				
127	HKABW60	709347	137	95 - 748	1542	Ala-16 to Glu-36, Arg-51 to Thr-56, Glu-104 to Thr-112.			AR033: 13, AR089: 12, AR060: 8, AR053: 8, AR039: 7, AR055: 6, AR052: 6, AR096: 5, AR061: 4, AR104: 3, H0038: 4, H0529: 3, L0803: 3, L0747: 3, L0779: 1	21q22.3	120220, 120240, 123580, 151385, 171860, 190685, 236100,	70-87	

128	HWLFB40	710542	138	79 - 627	1543	3, H0341: 2, L0761: 2, L0794: 2, L0766: 2, L0805: 2, L0664: 2, L0777: 2, L0591: 2, L0485: 2, H0556: 1, H0583: 1, H0661: 1, H0662: 1, S0420: 1, S0410: 1, H0333: 1, H0574: 1, S0280: 1, H0318: 1, H0014: 1, H0687: 1, S0003: 1, H0615: 1, L0055: 1, H0598: 1, H0551: 1, H0413: 1, T0042: 1, H0494: 1, S0344: 1, L0451: 1, L0369: 1, L0770: 1, L0769: 1, L0646: 1, L0773: 1, L0662: 1, L0768: 1, L0649: 1, L0381: 1, L0806: 1, L0527: 1, L0659: 1, L0809: 1, L0787: 1, L0438: 1, L0352: 1, S0390: 1, L0740: 1, L0750: 1, L0731: 1, L0757: 1, H0445: 1, L0592: 1 and H0543: 1. AR096: 5, AR053: 3, AR061: 3, AR052: 3, AR033: 3, AR089: 3, AR039: 3, AR104: 2, AR055: 2, AR060: 2 L0751: 6, H0510: 3, L0659: 3, L0439: 3, H0265:		236200, 240300, 267750, 600065, 601072, 601145			24-45, 97- 116, 67-84
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129	HDTDW40	710974	139	54 - 410	1544	Lys-18 to Ser-24.	2, S0212: 2, S0418: 2, H0509: 2, L0773: 2, L0438: 2, L0748: 2, L0754: 2, L0731: 2, L0581: 2, H0556: 1, H0650: 1, L0005: 1, S0354: 1, S0360: 1, S6022: 1, S6014: 1, H0581: 1, H0251: 1, H0178: 1, H0050: 1, L0471: 1, T0010: 1, H0355: 1, H0031: 1, L0143: 1, H0673: 1, H0135: 1, H0551: 1, S0372: 1, S0210: 1, L0770: 1, L0667: 1, L0772: 1, L0771: 1, L0768: 1, L0805: 1, L0776: 1, L0790: 1, L0792: 1, L0666: 1, L0665: 1, H0521: 1, L0744: 1, L0747: 1, L0777: 1, L0755: 1, L0757: 1 and H0445: 1.					56-74, 38-54, 89-105
						AR039: 16, AR096: 11, AR053: 10, AR033: 9, AR052: 7, AR104: 7, AR089: 7, AR055: 6, AR060: 6, AR061: 3, L0438: 3, S0114: 1, H0580: 1, H0486: 1, H0706: 1, L0455: 1, H0561: 1, H0529: 1, H0658: 1 and L0439: 1.						

130	HEAAK34	711111	140	7 - 825	1545		AR039: 46, AR052: 45, AR053: 36, AR096: 34, AR033: 27, AR055: 24, AR104: 24, AR089: 23, AR060: 18, AR061: 11 L0439: 3, L0438: 2, S0028: 2, H0656: 1, H0645: 1, H0369: 1, S0222: 1, S0346: 1, H0328: 1, H0029: 1, H0644: 1, H0169: 1, H0591: 1, H0646: 1, H0520: 1, H0539: 1, L0746: 1 and L0366: 1.			122-138, 90-106, 145-161
131	HLWAH41	711706	141	275 - 706	1546		AR096: 3, AR052: 2, AR039: 2, AR055: 2, AR033: 2, AR089: 2, AR060: 2, AR061: 1, AR053: 1, AR104: 1 L0748: 6, L0752: 5, H0553: 2, L0754: 2, L0749: 1 and L0780: 1.			85-117
132	HHSF189	712570	142	40 - 369	1547	Pro-8 to Thr-16, Glu-50 to Glu-60, Gln-67 to Arg-72, Lys-81 to Asn-94.	AR089: 8, AR033: 8, AR060: 6, AR096: 2, AR061: 2, AR053: 1, AR052: 1, AR039: 0, AR104: 0 S0388: 1, H0083: 1 and L0777: 1.			93-110
133	HSAVI33	714693	143	211 -	1548	Met-1 to Arg-6,	AR052: 17, AR053: 12,			52-68, 94-

134	HMJAX17	715359	144	662 - 333	1549		Glu-31 to Arg-36, His-85 to Gly-92.	AR033: 11, AR089: 8, AR060: 8, AR096: 7, AR061: 7, AR055: 4, AR104: 1, AR039: 0 L0740: 5, L0731: 5, L0439: 4, H0556: 3, L0766: 3, L0779: 3, H0657: 2, H0013: 2, H0318: 2, L0471: 2, H0547: 2, H0521: 2, L0748: 2, L0756: 2, L0777: 2, L0753: 2, L0601: 2, H0265: 1, S0114: 1, H0656: 1, H0580: 1, H0438: 1, H0333: 1, H0485: 1, H0486: 1, S0010: 1, H0052: 1, T0115: 1, S6028: 1, H0266: 1, H0271: 1, H0165: 1, H0674: 1, H0591: 1, S0002: 1, L0644: 1, L0768: 1, L0650: 1, L0375: 1, L0515: 1, L0659: 1, L0526: 1, L0666: 1, L0663: 1, H0436: 1, L0749: 1, L0750: 1, L0758: 1, L0596: 1, H0668: 1, H0543: 1, H0423: 1 and H0422: 1.	22q13.33			61-79, 78-94
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135	HLJDZ45	717449	145	271 - 849	1550			AR039: 2, AR061: 2 L0439: 4, L0777: 3, H0658: 2, S0114: 1, S0360: 1, L0717: 1, H0391: 1, H0486: 1, L0157: 1, H0172: 1, H0083: 1, H0551: 1, H0517: 1, L0769: 1, L0521: 1, L0768: 1, L0805: 1, L0664: 1, H0521: 1 and H0555: 1.				171-188
136	HAHBC57	718574	146	40 - 480	1551	Ile-95 to Ala-101, Leu-110 to Ser-128.		AR096: 2, AR060: 1, AR053: 1, AR033: 1, AR089: 0, AR061: 0, AR055: 0, AR104: 0, AR052: 0				48-64
137	HLYDR60	718768	147	281 - 661	1552	Glu-22 to Ala-29, Ser-47 to Arg-58, Ser-108 to Tyr-113.		AR039: 76, AR052: 40, AR033: 39, AR096: 39, AR055: 38, AR104: 33, AR053: 33, AR089: 28, AR060: 24, AR061: 20 L0485: 2, S0282: 1, S0418: 1, H0002: 1, H0253: 1, H0196: 1, L0794: 1 and L0787: 1.				111-127

138	HCHMQ09	719977	148	10 - 372	1553				S0182: 3, S0222: 2, H0445: 2, H0341: 1, H0151: 1, H0550: 1, T0039: 1, H0156: 1, H0275: 1, S0318: 1, S0316: 1, T0006: 1, H0040: 1, L0475: 1, S0344: 1, L0768: 1, L0766: 1, H0435: 1, L0750: 1, L0757: 1 and S0260: 1.				94-110	
139	HADMD75	720237	149	105 - 431	1554	Arg-11 to Gly-16, Pro-35 to Phe-44.			AR033: 4, AR039: 3, AR096: 2, AR089: 2, AR061: 2, AR052: 1, AR060: 1, AR104: 1, AR053: 0, AR055: 0 H0484: 1, S0280: 1, H0373: 1 and H0593: 1.				76-99	

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141	HFAUL30	721084	151	28 - 327	1556	Gly-10 to Glu-16, Gln-88 to Leu-99.	1, L0754: 1, L0747: 1, L0750: 1, L0752: 1, S0434: 1, L0595: 1 and L0366: 1, AR055: 16, AR039: 15, AR033: 15, AR053: 13, AR052: 10, AR089: 10, AR096: 10, AR104: 9, AR060: 8, AR061: 7 L0769: 4, S0126: 4, L0758: 4, L0755: 3, S0358: 2, S0444: 2, H0617: 2, H0673: 2, L0764: 2, S0374: 2, L0748: 2, L0779: 2, L0592: 2, H0716: 1, H0656: 1, H0341: 1, S0418: 1, S0420: 1, H0675: 1, S0408: 1, H0580: 1, S0046: 1, S0300: 1, H0632: 1, H0013: 1, S0280: 1, L0043: 1, H0606: 1, H0316: 1, S0150: 1, S0344: 1, L0762: 1, L0763: 1, L0761: 1, L0771: 1, L0766: 1, L0774: 1, L0775: 1, L0375: 1, L0655: 1, L0382: 1, H0144: 1, H0690: 1, S0328: 1, H0710: 1, H0521: 1, L0744: 1, L0786: 1, L0731: 1, H0445: 1, H0667: 1, S0276: 1, H0543: 1, H0422: 1 and					62-78
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142	HKADD23	721126	152	181 - 609	1557		S0446: 1. AR104: 10, AR033: 7, AR052: 6, AR089: 4, AR053: 4, AR096: 3, AR039: 3, AR060: 3, AR055: 2, AR061: 0 L0766: 4, H0494: 2, L0755: 2, S0040: 1, S0420: 1, S0046: 1, S0132: 1, S0222: 1, H0438: 1, H0250: 1, S0010: 1, H0038: 1, H0538: 1, L0800: 1, L0773: 1, H0670: 1 and L0777: 1.				70-87
143	HE8MO09	721141	153	42 - 401	1558	Leu-14 to Glu-23, Lys-41 to Arg-50, Pro-90 to Gln-96.	AR053: 42, AR096: 31, AR052: 30, AR089: 24, AR033: 23, AR104: 18, AR039: 18, AR055: 16, AR060: 16, AR061: 8 L0439: 9, H0013: 3, H0090: 2, H0561: 2, L0754: 2, L0731: 2, H0170: 1, H0341: 1, H0580: 1, H0485: 1, L0471: 1, H0024: 1, H0644: 1, H0591: 1, H0551: 1, L0766: 1, L0606: 1, L0659: 1, L0438: 1, L0352: 1, H0672: 1, H0521: 1, H0436: 1, H0627: 1, L0748: 1 and H0542: 1.				71-87

144	HE8FL67	721418	154	213 - 593	1559	Met-1 to Gly-7.	AR039: 20, AR089: 18, AR052: 18, AR053: 17, AR096: 17, AR033: 15, AR055: 15, AR104: 14, AR060: 13, AR061: 6 H0013: 1, L0761: 1 and L0779: 1.			106-127, 56-77, 80- 98
145	HEOOA49	722648	155	124 - 600	1560	Met-1 to Cys-18.	AR089: 6, AR033: 5, AR060: 5, AR053: 3, AR096: 3, AR061: 2, AR052: 2, AR039: 2, AR055: 2, AR104: 1 H0617: 9, H0549: 4, S0406: 4, L0439: 3, H0717: 2, H0255: 2, S0358: 2, H0550: 2, S0049: 2, H0494: 2, L0777: 2, H0713: 1, H0716: 1, H0484: 1, S0356: 1, S0132: 1, H0619: 1, L0021: 1, H0421: 1, H0457: 1, S0366: 1, H0379: 1, S0344: 1, H0529: 1, L0639: 1, L0761: 1, L0803: 1, L0774: 1, L0657: 1, L0783: 1, L0789: 1, H0593: 1, H0539: 1, H0436: 1 and H0543: 1.			42-58, 73- 89, 120- 136
146	HMSJH49	722943	156	34 - 591	1561		AR055: 11, AR060: 7, AR096: 5, AR033: 5,			77-97, 14- 31

147	HARAX45	723491	157	218 - 910	1562	Pro-28 to Ser-33, Pro-66 to Arg-79, Ser-163 to Gly-180.	AR052: 5, AR061: 5, AR039: 4, AR089: 3, AR053: 3, AR104: 3 L0539: 2, H0546: 1, S0386: 1, H0560: 1, S0002: 1, L0741: 1 and L0746: 1.	15q13-q14	102540, 103581, 118511, 146150, 218000, 227220, 243500, 254770, 601623, 601800, 601889, 602117	1-25, 86- 119, 142- 159, 79-95	
148	HDTES50	724196	158	48 - 395	1563		AR096: 3, AR039: 1, AR052: 1, AR089: 1, AR060: 1, AR055: 0, AR061: 0, AR033: 0, AR053: 0, AR104: 0 H0341: 1 and H0486: 1.			89-107, 6- 22	
149	HKGBC30	724352	159	318 - 662	1564	Met-1 to Ala-7, His-24 to Pro-35.	AR061: 1, AR033: 1, AR039: 0, AR089: 0, AR053: 0, AR096: 0, AR055: 0, AR060: 0, AR052: 0, AR104: 0			41-58	

150	HKIXO37	724432	160	90 - 500	1565	Glu-10 to Asn-15, Val-73 to Arg-83, Gly-118 to Ser-128.	AR052: 19, AR055: 18, AR089: 17, AR053: 14, AR033: 11, AR061: 9, AR060: 9, AR096: 8, AR039: 0, AR104: 0 L0766: 4, H0441: 1, L0744: 1 and L0596: 1.				90-106, 42-58
151	HTLFI39	724950	161	218 - 577	1566	Met-1 to Ser-7.	AR039: 53, AR055: 28, AR053: 27, AR033: 23, AR052: 21, AR096: 21, AR104: 21, AR089: 18, AR060: 15, AR061: 13 H0618: 8 and H0253: 4.	7q22	126650, 126650, 154276, 173360, 173360, 602136, 602136, 602136, 602447		43-59
152	HEQBJ81	725228	162	127 - 888	1567	Glu-122 to Lys-127, Glu-161 to Val-168, Thr-178 to Trp-189.	AR104: 4, AR033: 4, AR089: 3, AR053: 3, AR052: 3, AR096: 2, AR061: 2, AR060: 2, AR055: 2, AR039: 2 L0803: 6, L0771: 5, L0439: 5, L0769: 4, L0805: 4, L0759: 4, L0747: 3, L0777: 3, L0758: 3, H0156: 2, H0618: 2, H0052: 2, H0545: 2, L0163: 2, H0644: 2, S0440: 2, L0644: 2,	3p21.3	116806, 120120, 120120, 120120, 120436, 120436, 120436, 138320, 168468, 182280, 600163		221-238, 54-70



153	HAGES18	725655	163	215 - 568	1568	Met-1 to Lys-11, Gln-72 to Gly-77.	L0766: 2, L0653: 2, L0665: 2, H0539: 2, L0748: 2, L0731: 2, L0593: 2, H0624: 1, H0556: 1, T0002: 1, H0713: 1, H0650: 1, H0657: 1, H0402: 1, S0360: 1, S0132: 1, H0619: 1, L0717: 1, S0278: 1, H0642: 1, H0486: 1, T0039: 1, H0013: 1, H0253: 1, S0665: 1, H0544: 1, H0546: 1, H0009: 1, H0620: 1, H0014: 1, H0083: 1, S6028: 1, H0288: 1, H0674: 1, S0366: 1, H0591: 1, H0412: 1, H0100: 1, T0042: 1, L0475: 1, H0561: 1, H0647: 1, S0144: 1, H0529: 1, L0763: 1, L0772: 1, L0372: 1, L0662: 1, L0363: 1, L0794: 1, L0775: 1, L0776: 1, L0809: 1, L0666: 1, L0663: 1, H0702: 1, H0520: 1, S0126: 1, H0435: 1, H0658: 1, S0332: 1, H0478: 1, L0751: 1, L0750: 1, L0755: 1, L0592: 1, L0366: 1, H0542: 1, H0423: 1 and H0677: 1.	AR033: 28, AR060: 19, AR104: 19, AR089: 18,			22-63, 51- 67
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154	HHSGV20	725822	164	183 - 575	1569	Arg-14 to Pro-20.	AR096: 13, AR061: 8, AR055: 6, AR053: 5, AR052: 5, AR039: 3					69-85, 27- 44, 112- 128
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155	HNECD53	727386	165	117 - 554	1570	Pro-13 to Ser-19, Ala-21 to Asp-30, Gln-41 to Val-48, Asp-108 to Leu-113.	AR096: 4, AR055: 3, AR033: 3, AR060: 2, AR052: 2, AR089: 2, AR053: 2, AR061: 2, AR104: 0 L0731: 8, L0794: 7, L0803: 4, H0265: 3, L0809: 3, L0596: 3, L0766: 2, L0659: 2, L0565: 2, L0595: 2, H0556: 1, S0134: 1, H0657: 1, H0341: 1, S0356: 1, H0411: 1, S0222: 1, T0104: 1, H0013: 1, H0618: 1, H0597: 1, H0050: 1, H0620: 1, H0179: 1, H0292: 1, H0553: 1, T0067: 1, H0412: 1, S0422: 1, L0644: 1, L0662: 1, L0804: 1, L0805: 1, L0636: 1, L0789: 1, L0665: 1, S0126: 1, S0152: 1, H0704: 1, H0215: 1, L0786: 1, L0779: 1, L0777: 1, L0780: 1, L0758: 1, L0759: 1, L0608: 1 and L0361: 1.			121-144, 89-105
156	HRAAO53	728064	166	71 - 403	1571	Arg-7 to Leu-15.	AR052: 4, AR039: 3, AR104: 3, AR033: 2, AR096: 2, AR060: 2, AR053: 2, AR055: 2, AR089: 1, AR061: 1	13q14.1- q14.2	136533, 180200, 180200, 180200, 180200,	34-54, 83- 101

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				4, S0374: 4, L0438: 4, H0520: 4, H0670: 4, H0555: 4, L0754: 4, L0750: 4, L0755: 4, L0757: 4, L0591: 4, L0361: 4, H0422: 4, H0624: 3, H0341: 3, S0442: 3, S0376: 3, S0007: 3, H0441: 3, H0586: 3, H0036: 3, H0581: 3, H0052: 3, H0266: 3, H0553: 3, H0644: 3, H0038: 3, H0551: 3, H0647: 3, H0646: 3, L0771: 3, L0517: 3, L0664: 3, H0593: 3, H0660: 3, S0406: 3, L0745: 3, L0746: 3, L0752: 3, H0445: 3, S0192: 3, H0542: 3, H0170: 2, H0716: 2, H0662: 2, H0580: 2, H0619: 2, S0278: 2, H0369: 2, S0414: 2, T0060: 2, H0156: 2, H0599: 2, S0049: 2, H0178: 2, L0163: 2, H0051: 2, S0388: 2, H0083: 2, H0252: 2, H0328: 2, H0615: 2, H0688: 2, T0023: 2, H0674: 2, L0455: 2, H0068: 2, H0135: 2, H0100: 2, S0440: 2, H0641: 2, S0002: 2, L0520: 2, L0641: 2, L0794: 2, L0651:						
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[illegible]

[illegible]





157	HDPGD34	728098	167	132 - 863	1572	Tyr-5 to Gly-13, Ala-23 to Leu-38, Tyr-82 to Leu-95, Asn-126 to Asp-146, Pro-153 to Pro-167.	1, H0667: 1, S0276: 1, S0424: 1, S0462: 1, S0456: 1, H0008: 1 and H0352: 1. AR096: 1, AR104: 1, AR089: 1, AR060: 1, AR061: 0, AR033: 0, AR039: 0, AR052: 0, AR055: 0, AR053: 0 L0740: 10, H0521: 8, L0659: 7, L0666: 7, L0731: 7, L0664: 6, L0754: 6, L0803: 5, L0752: 5, S0003: 4, L0770: 4, L0771: 4, L0438: 4, H0547: 4, S0380: 4, S0152: 4, H0522: 4, L0755: 4, H0171: 3, S0212: 3, S0358: 3, H0013: 3, H0545: 3, H0623: 3, S0344: 3, H0520: 3, S0126: 3, H0648: 3, H0539: 3, L0602: 3, L0744: 3, L0750: 3, L0758: 3, L0599: 3, S0026: 3, S0192: 3, S0242: 3, L0005: 2, S0360: 2, H0581: 2, H0510: 2, H0375: 2, L0483: 2, H0169: 2, H0090: 2, H0379: 2, H0056: 2, H0560: 2, L0662: 2, L0794: 2, L0766: 2, L0775: 2, H0660: 2, L0757: 2, H0667:				40-72
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						2, H0543: 2, H0422: 2, H0624: 1, H0265: 1, S0040: 1, S0134: 1, S0116: 1, S0418: 1, H0637: 1, H0580: 1, H0329: 1, H0208: 1, S0045: 1, H0370: 1, H0574: 1, T0040: 1, H0590: 1, S0010: 1, S0346: 1, S0474: 1, H0263: 1, H0596: 1, H0544: 1, H0546: 1, L0471: 1, T0003: 1, H0024: 1, S0050: 1, H0373: 1, S0388: 1, H0083: 1, S6028: 1, S0214: 1, H0615: 1, H0428: 1, H0622: 1, H0553: 1, L0142: 1, H0032: 1, H0598: 1, S0036: 1, H0040: 1, H0616: 1, H0063: 1, H0551: 1, H0268: 1, H0269: 1, S0386: 1, T0041: 1, L0065: 1, S0150: 1, H0641: 1, H0529: 1, L0369: 1, L0763: 1, L0667: 1, L0800: 1, L0764: 1, L0648: 1, L0804: 1, L0651: 1, L0519: 1, L0788: 1, L0663: 1, L0665: 1, H0144: 1, H0593: 1, H0690: 1, H0659: 1, H0670: 1, S0330: 1, H0696: 1, H0694: 1, S0168: 1, H0134:
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									I, H0555: 1, H0436: 1, H0478: 1, S0027: 1, S0028: 1, L0439: 1, L0688: 1, L0583: 1, L0362: 1, L0366: 1, H0668: 1, S0196: 1, H0542: 1, H0423: 1, S0456: 1 and S0021: 1.			
158	HLYBU12	728763	168	212 - 769	1573	Thr-35 to Lys-40, Pro-63 to Gln-69, Leu-122 to Thr-128.		AR096: 1, AR052: 1, AR104: 1, AR033: 1, AR089: 0, AR053: 0, AR055: 0, AR061: 0, AR060: 0 L0766: 5, L0748: 3, L0758: 3, L0791: 2, S0328: 2, L0747: 2, L0777: 2, H0251: 1, H0673: 1, L0803: 1, L0806: 1, L0665: 1, H0547: 1, H0436: 1, L0749: 1, L0756: 1, L0779: 1, L0759: 1, H0445: 1 and L0592: 1.			42-63, 12-28	
159	HEONV59	728861	169	157 - 972	1574	Tyr-81 to Ile-88, Ala-113 to Gln-118, Asn-183 to Ser-189.		AR096: 2, AR055: 1, AR089: 1, AR033: 1, AR060: 1, AR061: 0, AR053: 0, AR039: 0, AR104: 0, AR052: 0 H0457: 1 and H0521: 1.			230-267, 2-18, 87-103	
160	HCWHX54	728903	170	95 - 445	1575			AR061: 0, AR060: 0, AR096: 0, AR033: 0,			88-105, 60-76	

161	HE8DF23	730794	171	739 - 1101	1576	Arg-26 to Gln-35, Arg-41 to Asn-46, Tyr-80 to Ser-85.	AR052: 0, AR039: 0, AR104: 0, AR089: 0, AR055: 0, AR053: 0 H0305: 1 and H0423: 1. AR053: 19, AR052: 17, AR089: 12, AR096: 12, AR055: 12, AR060: 8, AR033: 7, AR061: 5, AR104: 4, AR039: 3 L0766: 4, L0779: 4, L0803: 3, L0747: 3, L0752: 3, H0039: 2, H0059: 2, L0794: 2, S0027: 2, L0744: 2, L0740: 2, L0777: 2, L0759: 2, S0430: 1, S0418: 1, S0358: 1, S6014: 1, H0497: 1, H0013: 1, H0575: 1, H0123: 1, H0510: 1, H0040: 1, L0761: 1, L0662: 1, L0804: 1, L0774: 1, L0775: 1, L0776: 1, L0384: 1, L0787: 1, L0663: 1, H0702: 1, H0547: 1, H0682: 1, H0696: 1, L0749: 1, L0753: 1, L0731: 1, H0445: 1, H0595: 1, S0276: 1 and H0542: 1.				103-119, 55-71
162	HOECO53	730924	172	113 - 439	1577	Phe-22 to Asn-33, Ala-68 to Gly-73.	AR039: 53, AR033: 27, AR096: 21, AR055: 20,				43-62, 1- 17

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	H0170: 1, H0171: 1, H0556: 1, H0716: 1, S6024: 1, H0294: 1, S0114: 1, H0657: 1, H0656: 1, H0381: 1, S0116: 1, S0282: 1, H0638: 1, H0125: 1, S0442: 1, H0728: 1, S0132: 1, S6022: 1, S0222: 1, H0392: 1, H0592: 1, S0280: 1, L0021: 1, T0082: 1, H0618: 1, S0049: 1, H0251: 1, H0309: 1, H0327: 1, H0178: 1, H0567: 1, H0081: 1, H0012: 1, H0024: 1, S0051: 1, H0083: 1, H0594: 1, H0179: 1, H0188: 1, H0290: 1, H0292: 1, H0252: 1, H0328: 1, S0368: 1, H0181: 1, H0063: 1, H0264: 1, S0038: 1, H0560: 1, H0625: 1, S0464: 1, S0440: 1, H0130: 1, H0641: 1, H0646: 1, S0344: 1, H0529: 1, L0369: 1, L0371: 1, L0761: 1, L0772: 1, L0800: 1, L0662: 1, L0768: 1, L0364: 1, L5568: 1, L0774: 1, L0523: 1, L0653: 1, L0807: 1, L0809: 1, L0647: 1, L0664: 1, S0052: 1, S0216: 1,	
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163	HDFAB91	731889	173	375 - 1022	1578	Cys-30 to Tyr-36, Thr-41 to Gly-46, Val-111 to His-122, Pro-201 to Arg-206, Pro-209 to His-216.	H0144: 1, H0547: 1, H0670: 1, S0378: 1, S0152: 1, H0521: 1, H0522: 1, S3012: 1, S0206: 1, L0743: 1, L0740: 1, L0779: 1, L0731: 1, L0588: 1, L0608: 1, L0603: 1, H0653: 1, H0667: 1, H0216: 1, S0192: 1, S0194: 1 and S0196: 1.				139-168, 1-18
164	HWLER32	732236	174	157 - 666	1579	Lys-45 to Arg-52.	AR033: 7, AR052: 2, AR089: 1, AR053: 1, AR061: 1, AR060: 1, AR055: 0, AR096: 0, AR104: 0, AR039: 0 L0769: 8, L0794: 8, L0439: 7, H0399: 3, L5565: 3, L0758: 3, H0253: 2, H0051: 2, L0438: 2, L0748: 2, L0777: 2, H0624: 1, H0441: 1, H0438: 1, L0021: 1, H0618: 1, S0049: 1, H0562: 1, S0050: 1, S0051: 1, L0638: 1, L0789: 1, H0547: 1, H0658: 1, L0743: 1, L0753: 1, S0031: 1 and S0260: 1.				5-26, 90- 108, 52-72

165	HNFE71	732600	175	29 - 430	1580	Gln-2 to Lys-7, Glu-35 to Thr-42, Arg-64 to Ser-72.	AR060: 31, AR033: 30, AR055: 11, AR061: 10 L0748: 3, S0354: 1, H0421: 1, H0355: 1, S0428: 1 and S0031: 1. AR055: 9, AR052: 7, AR060: 4, AR033: 4, AR061: 4, AR089: 3, AR096: 3, AR053: 3, AR039: 1, AR104: 1 H0271: 11, L0759: 4, L0779: 3, L0755: 3, H0222: 2, H0575: 2, H0705: 2, H0581: 2, H0622: 2, H0030: 2, L0803: 2, L0659: 2, L0790: 2, L0754: 2, L0749: 2, L0777: 2, L0591: 2, H0556: 1, H0159: 1, T0049: 1, H0650: 1, S0418: 1, S0045: 1, H0437: 1, T0060: 1, H0069: 1, H0599: 1, H0046: 1, L0163: 1, S0051: 1, H0083: 1, H0179: 1, H0416: 1, H0039: 1, H0553: 1, H0628: 1, S0366: 1, H0038: 1, H0551: 1, H0488: 1, H0268: 1, H0059: 1, T0042: 1, S0422: 1, H0529: 1, L0770: 1, L0667: 1, L0800: 1, L0641: 1, L0773:					43-59
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166	HOUHA56	732902	176	114 - 536	1581	Phe-6 to Ser-16.	1, L0662: 1, L0794: 1, L0766: 1, L0650: 1, L0375: 1, L0530: 1, L0791: 1, L0663: 1, S0216: 1, S0380: 1, H0521: 1, S0027: 1, L0748: 1, L0731: 1, L0757: 1, L0758: 1 and H0423: 1.				103-119, 63-79
167	HMSHT01	733800	177	664 - 248	1582	Phe-70 to Val-76.	AR033: 6, AR104: 2, AR060: 1, AR052: 1, AR089: 1, AR061: 0, AR055: 0, AR039: 0, AR096: 0, AR053: 0 S0342: 1 AR060: 6, AR033: 6, AR055: 6, AR089: 5, AR096: 5, AR104: 5, AR052: 3, AR053: 3, AR061: 3, AR039: 1 H0399: 4, L0805: 3, H0661: 2, S0356: 2, H0457: 2, L0794: 2, L0775: 2, L0663: 2, L0747: 2, L0759: 2, L0005: 1, H0580: 1, S0222: 1, H0156: 1, L0021: 1, H0575: 1, H0581: 1, H0327: 1, H0123: 1, H0012: 1, H0057: 1, S0051: 1, H0328: 1, H0163: 1, H0038: 1, H0413: 1, H0100: 1,				86-103, 30-46

168	HAPQM57	734582	178	96 - 401	1583	Arg-16 to Glu-27.	S0002: 1, L0598: 1, L0769: 1, L0766: 1, L0657: 1, L0666: 1, L0665: 1, H0435: 1, S0152: 1, H0521: 1, L0740: 1, L0754: 1, L0777: 1, S0194: 1, S0276: 1 and H0542: 1.				50-66, 70-86	
169	HSLJK58	735584	179	233 - 880	1584	Pro-5 to Thr-10, Lys-23 to Asn-33, Gln-105 to Tyr-115.	AR055: 9, AR061: 8, AR033: 6, AR052: 6, AR060: 5, AR089: 4, AR053: 4, AR096: 2, AR039: 1, AR104: 1, H0351: 2, H0575: 2, L0794: 2, L0803: 2, L0751: 2, H0333: 1, H0390: 1, H0553: 1, L0645: 1, L0766: 1, L0439: 1, L0747: 1, L0749: 1 and L0601: 1.				194-211, 73-89	
170	HSLHL67	735747	180	35 - 673	1585	Glu-40 to Tyr-45.	AR055: 4, AR033: 3, AR096: 3, AR052: 3, AR061: 3, AR039: 2, AR060: 2, AR089: 2, AR053: 1, AR104: 1, L0783: 2, L0751: 2, H0409: 1, H0559: 1, L0471: 1, H0646: 1, H0658: 1, S0390: 1, L0777: 1, L0731: 1 and L0462: 1.				62-78, 20-	

171	HCEMF51	738228	181	681 - 1148	1586			AR060: 7, AR039: 6, AR089: 6, AR052: 6, AR055: 6, AR104: 5, AR033: 5, AR061: 4 S0280: 1, H0488: 1, H0509: 1 and S0028: 1.				36, 111- 127
							Arg-11 to Ser-24, Ser-37 to Ala-43.	AR055: 10, AR060: 7, AR033: 6, AR061: 6, AR089: 6, AR052: 4, AR053: 4, AR096: 4, AR104: 3, AR039: 2 H0052: 5, L0748: 5, L0756: 4, L0731: 4, S0360: 3, L0764: 3, L0747: 3, L0749: 3, H0255: 2, H0333: 2, L0055: 2, L0653: 2, L0740: 2, L0754: 2, L0750: 2, L0596: 2, H0352: 2, H0556: 1, H0341: 1, H0662: 1, H0306: 1, H0402: 1, H0036: 1, H0434: 1, H0150: 1, L0456: 1, H0135: 1, H0413: 1, H0059: 1, H0529: 1, L0770: 1, L0769: 1, L0630: 1, L0521: 1, L0662: 1, L0775: 1, L0776: 1, L0493: 1, H0684: 1, S0328: 1, S0044: 1, L0777: 1, L0752: 1, L0755: 1, L0758: 1 and S0242: 1.				98-116, 136-152

172	HTHCV59	738569	182	59 - 373	1587		AR089: 17, AR060: 15, AR096: 15, AR055: 13, AR039: 13, AR033: 12, AR104: 11, AR052: 10, AR053: 8, AR061: 7 H0318: 1 and H0063: 1.			83-102, 10-26
173	HCHCI12	738911	183	129 - 656	1588	Ser-22 to His-33, Pro-85 to Asn-94, Phe-101 to Gln-108.	AR061: 3, AR052: 2, AR089: 2, AR055: 2, AR033: 2, AR104: 2, AR096: 2, AR060: 1, AR053: 1, AR039: 0 L0742: 4, H0484: 2, L0763: 2, L0758: 2, H0483: 1, H0618: 1, H0047: 1, H0188: 1, S0344: 1, L0637: 1, L0771: 1, L0803: 1, L0628: 1, H0683: 1, H0522: 1 and L0752: 1.			48-64, 121-137
174	HOEAU34	739003	184	149 - 526	1589	Ala-9 to Leu-16.	AR089: 9, AR060: 8, AR033: 7, AR096: 2, AR053: 1, AR061: 1, AR055: 0, AR052: 0, AR039: 0, AR104: 0 L0809: 3, H0442: 2, S0010: 2, L0794: 2, L0803: 2, S0378: 2, H0341: 1, S0376: 1, H0611: 1, H0486: 1, H0013: 1, H0156: 1, L0021: 1, H0318: 1, H0123:			47-67

									1, H0024: 1, L0483: 1, H0135: 1, H0163: 1, S0344: 1, L0769: 1, L0773: 1, L0774: 1, L0518: 1, S0126: 1, H0684: 1, S0380: 1, S0454: 1, H0436: 1, L0754: 1, L0747: 1, L0608: 1, S0026: 1, H0667: 1 and H0543: 1.				
175	HFASN59	739048	185	45 - 368	1590				AR104: 1, AR061: 1, AR060: 0, AR039: 0, AR033: 0, AR089: 0, L0794: 3, L0749: 2, L0731: 2, H0650: 1, S0408: 1, S0300: 1, L0456: 1, L0769: 1, L0637: 1, L0643: 1, L0650: 1, L0659: 1, L0792: 1, L0666: 1, L0438: 1, H0696: 1 and L0747: 1.				71-90, 13-29, 42-58
176	HLHCU82	739503	186	152 - 490	1591	Lys-5 to Glu-11, Tyr-17 to Asp-25.			AR055: 6, AR096: 5, AR052: 5, AR060: 4, AR089: 4, AR061: 4, AR053: 4, AR033: 3, AR104: 1, AR039: 0, L0362: 20, L0766: 11, L0754: 10, L0747: 5, L0731: 4, S0003: 3, H0547: 3, S0026: 3, S0212: 2, H0251: 2, H0046: 2, H0031: 1.	11q13.5	133780, 266150, 276903, 276903, 276903	61-78	

177	HSDJN50	740786	187	2615 - 2247	1592	Ala-87 to Ala-97.	2, H0674: 2, L0769: 2, L0663: 2, L0665: 2, H0144: 2, L0438: 2, L0748: 2, L0439: 2, H0445: 2, H0170: 1, H0686: 1, T0049: 1, S0134: 1, H0657: 1, S0001: 1, H0459: 1, S0360: 1, S0410: 1, S0468: 1, H0431: 1, H0497: 1, H0486: 1, S0280: 1, H0196: 1, H0596: 1, H0565: 1, H0571: 1, H0566: 1, H0024: 1, H0275: 1, H0267: 1, S0214: 1, H0615: 1, H0090: 1, H0040: 1, H0634: 1, H0413: 1, S0440: 1, S0208: 1, H0529: 1, L0640: 1, L0770: 1, L0642: 1, L0794: 1, L0649: 1, L0803: 1, L0804: 1, L0650: 1, L0774: 1, L0775: 1, L0805: 1, L0661: 1, L0783: 1, L0809: 1, L0666: 1, L0664: 1, H0519: 1, H0684: 1, H0672: 1, S0406: 1, L0740: 1, L0750: 1, L0779: 1, L0758: 1, S0434: 1, L0589: 1, S0106: 1, H0667: 1 and S0424: 1.	AR096: 9, AR053: 9, AR052: 7, AR089: 6,			46-68, 21- 42, 66-82,
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178	HMAFM05	741055	188	438 - 803	1593	Ser-23 to Lys-37, Thr-61 to Pro-66.	AR104: 4, AR060: 3, AR039: 3, AR055: 3, AR061: 2, AR033: 1 L0005: 4, S0045: 4, S0222: 4, S0028: 4, H0624: 3, S0144: 2, S0260: 2, S0134: 1, S0218: 1, H0381: 1, H0341: 1, S0001: 1, S0282: 1, S0046: 1, L0476: 1, H0191: 1, H0575: 1, S0050: 1, H0048: 1, H0135: 1, S0038: 1, H0100: 1, S0150: 1, L0378: 1, S0052: 1, S0044: 1, S0390: 1 and S0031: 1.					2-18
							AR052: 11, AR053: 9, AR033: 7, AR096: 7, AR104: 6, AR089: 6, AR060: 4, AR055: 3, AR061: 2, AR039: 2 S0354: 5, S0426: 5, S0002: 3, S0278: 2, L0375: 2, L0751: 2, L0758: 2, L0539: 1, H0392: 1, H0592: 1, H0318: 1, L0041: 1, H0494: 1, S0144: 1, S0142: 1, S0344: 1, L0803: 1, L0804: 1, L0805: 1, L0776: 1, S0052: 1, S0428: 1, S0053: 1, H0144: 1, S0378: 1,					89-106, 40-56

179	HKAAA18	741128	189	139 - 555	1594	Lys-5 to Glu-11, Tyr-17 to Asp-25, Lys-39 to Ile-45, Val-81 to Leu-93, Thr-100 to Phe-106, Thr-117 to Glu-126, Thr-128 to Gln-133.	H0555: 1 and H0478: 1. AR053: 24, AR052: 19, AR096: 7, AR089: 3, AR033: 2, AR039: 2, AR104: 2, AR060: 2, AR055: 1, AR061: 1 H0486: 1 and H0494: 1.	11q13.5	133780, 266150, 276903, 276903, 276903	61-78
180	HISCL61	741659	190	19 - 483	1595	Leu-44 to Glu-49, Tyr-61 to Cys-68, Glu-94 to Ile-108.	AR096: 2, AR060: 1, AR089: 1, AR104: 1, AR033: 1, AR055: 0, AR061: 0, AR052: 0, AR039: 0, AR053: 0 L0766: 2, L0776: 2, L0759: 2, T0002: 1, H0329: 1, H0604: 1, H0424: 1, S0144: 1, L0800: 1, L0644: 1, L0662: 1, L0804: 1, L0775: 1, L0806: 1, L0805: 1, L0659: 1, H0593: 1, H0539: 1, H0521: 1, L0786: 1, L0731: 1 and L0601: 1.	19		73-89, 109-125
181	HAGDA61	741921	191	112 - 492	1596	Pro-6 to Thr-21, Asp-47 to Ile-57, Lys-76 to Tyr-90.	AR104: 74, AR096: 39, AR089: 34, AR039: 33, AR033: 24, AR052: 23, AR060: 23, AR053: 20, AR055: 11, AR061: 6 S0010: 1, L0740: 1 and L0752: 1.			99-119



182	HFIO11	742518	192	535 - 209	1597	Met-1 to Gly-7, Ala-16 to Gln-21, Ser-35 to Gly-41, Thr-43 to Asn-52.	AR096: 5, AR089: 3, AR060: 3, AR033: 2, AR104: 2, AR052: 1, AR039: 1, AR053: 1, AR055: 1, AR061: 1 H0038: 3, L0439: 3, H0039: 2, L0740: 2, L0747: 2, L0756: 2, H0592: 1, H0318: 1, H0031: 1, H0644: 1, L0766: 1, L0774: 1, L0666: 1, L0438: 1, L0754: 1, L0779: 1, L0758: 1, S0192: 1, S0194: 1 and H0506: 1.			62-78, 92- 108
183	HUSGB32	742690	193	46 - 840	1598	Glu-4 to Gly-12, Gly-19 to Ser-37, Gln-49 to Asn-54, Glu-102 to Cys-108, Leu-116 to Asn-125.	AR033: 9, AR089: 4, AR052: 3, AR096: 3, AR053: 3, AR055: 3, AR060: 3, AR104: 2, AR061: 1, AR039: 1 L0748: 2, H0581: 1, H0046: 1, L0483: 1, H0634: 1, H0412: 1, S0150: 1, H0520: 1, L0612: 1 and H0543: 1.			54-71, 133-149
184	HTXED15	743383	194	101 - 442	1599	Ser-43 to Val-53.	AR033: 7, AR060: 5, AR089: 5, AR061: 2, AR039: 2, AR096: 1, AR055: 0, AR053: 0, AR052: 0			55-71, 24- 40, 74-90

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188	HMDAG54	744453	198	759 - 1223	1603	Tyr-9 to Asn-15, Arg-57 to Trp-64, Pro-68 to Ala-78, Gln-83 to Asp-88, Pro-106 to Ser-112.	L0731: 3, L0759: 3, L0777: 2, L0752: 2, L0021: 1, S0250: 1, H0252: 1, L0770: 1, L0774: 1, L0792: 1, L0793: 1, L0750: 1, L0779: 1, L0758: 1 and S0194: 1.	164953, 188070, 600957, 601238, 601846, 602216, 602477		
189	HCHMI51	744616	199	234 - 584	1604		AR033: 1, AR089: 0, AR061: 0, AR096: 0, AR060: 0, AR053: 0, AR104: 0, AR052: 0, AR055: 0, AR039: 0 L0372: 2, L0748: 2, L0439: 2, L0751: 2, L0754: 2, L0750: 2, L0756: 2, L0779: 2, L0755: 2, H0170: 1, S0212: 1, S0282: 1, H0346: 1, S0376: 1, S0360: 1, T0040: 1, H0253: 1, H0424: 1, H0553: 1, H0674: 1, L0772: 1, L0764: 1, L0771: 1, L0803: 1, L0776: 1, L0659: 1, H0144: 1, S0374: 1 and L0747: 1.			115-131
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190	HAHEA63	744726	200	220 - 531	1605				1, L0540: 1, L0383: 1, L0790: 1, L4508: 1, H0658: 1, H0660: 1, H0672: 1, H0651: 1, S0330: 1, S0378: 1, S0332: 1, S0013: 1, H0696: 1, S0392: 1, H0627: 1, H0445: 1, H0667: 1, H0542: 1, S0452: 1, L0600: 1 and H0352: 1. AR033: 38, AR089: 32, AR052: 29, AR104: 27, AR096: 27, AR060: 22, AR053: 22, AR055: 11, AR039: 11, AR061: 9 H0599: 5, H0575: 3, L0438: 2, S0212: 1, S0420: 1, S0356: 1, H0393: 1, H0549: 1, H0391: 1, H0036: 1, T0071: 1, H0581: 1, S0051: 1, H0266: 1, H0271: 1, H0292: 1, H0272: 1, L0435: 1, H0280: 1, H0561: 1, H0509: 1, L0762: 1, H0547: 1, H0435: 1, H0521: 1, S0028: 1, L0439: 1, H0542: 1, H0543: 1 and H0423: 1.				84-100
191	HAJAN63	744831	201	108 - 500	1606	Ser-21 to Trp-28, Arg-63 to Val-68.	AR039: 12, AR096: 7, AR104: 7, AR033: 6,			76-107, 1- 17, 114-			

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192	HSRFP52	745408	202	368 - 1276	1607	Pro-27 to Arg-42, Asp-94 to Ser-104, Arg-114 to Asn-120, Ala-127 to Ala-138, Ala-156 to Pro-163, Gln-231 to Leu-238.		AR055: 10, AR060: 5, AR053: 5, AR052: 5, AR033: 5, AR061: 4, AR089: 4, AR096: 4, AR104: 2, AR039: 0 S0022: 7, L0805: 3, H0556: 2, H0046: 2, L0764: 2, L0662: 2, S0126: 2, L0748: 2, H0305: 1, H0013: 1, H0050: 1, H0615: 1, H0039: 1, H0040: 1, H0087: 1, T0042: 1, L0643: 1, L0794: 1, L0803: 1, L0804:		256-273, 42-58		

193	HCHOH38	746390	203	140 - 904	1608	Gly-7 to Lys-16, Gly-84 to Pro-90, Pro-100 to Ser-106.	1, L0807: 1, L0809: 1, L0666: 1, H0144: 1, H0547: 1, L0749: 1, L0779: 1 and L0758: 1. AR104: 10, AR033: 7, AR096: 5, AR089: 4, AR052: 3, AR053: 3, AR039: 3, AR060: 3, AR055: 1, AR061: 1 S0001: 4, L0439: 4, H0617: 3, L0776: 3, L0438: 3, L0748: 3, H0484: 2, S0420: 2, S0222: 2, H0274: 2, H0181: 2, H0529: 2, L0517: 2, L0789: 2, H0659: 2, L0751: 2, L0596: 2, L0361: 2, H0295: 1, T0049: 1, H0656: 1, S0418: 1, L0005: 1, S0476: 1, H0645: 1, H0333: 1, L0021: 1, H0036: 1, H0052: 1, H0597: 1, H0545: 1, H0009: 1, H0178: 1, H0081: 1, S0388: 1, H0673: 1, S0036: 1, H0038: 1, H0494: 1, L0769: 1, L0796: 1, L0372: 1, L0800: 1, L0643: 1, L0645: 1, L0521: 1, L0768: 1, L0364: 1, L0803: 1, L0806: 1, L0805: 1, L0792: 1,				177-195, 53-69, 150-166, 16-32
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194	HMSBS61	746583	204	783 - 1	1609					L0793: 1, S0374: 1, H0547: 1, S0328: 1, H0696: 1, S0406: 1, S0028: 1, S0032: 1, L0742: 1, L0754: 1, L0779: 1, L0777: 1, L0780: 1, L0757: 1, L0592: 1, L0595: 1, S0026: 1 and H0423: 1.					201-217
										Thr-17 to Glu-25, Glu-61 to Val-66, Leu-122 to Cys-129, Glu-139 to Asp-148, Pro-169 to Val-179, Lys-183 to Gly-193.	AR052: 11, AR053: 10, AR096: 9, AR055: 7, AR033: 6, AR060: 5, AR039: 5, AR061: 4, AR089: 4, AR104: 4, L0748: 14, H0457: 9, L0766: 8, H0543: 7, L0731: 6, L0439: 5, L0770: 4, L0747: 4, H0542: 4, S0002: 3, L0777: 3, H0445: 3, S0434: 3, S0192: 3, H0423: 3, S0114: 2, H0575: 2, S0010: 2, L0667: 2, L0646: 2, L0775: 2, L0655: 2, H0436: 2, L0749: 2, L0594: 2, H0422: 2, S0342: 1, S0134: 1, H0583: 1, S0212: 1, S0376: 1, S0045: 1, S0046: 1, S0476: 1, S0222: 1, H0486: 1, H0635: 1, H0156: 1, S0346: 1, S0474: 1, H0263: 1, H0572: 1,				

195	HNFHK32	746584	205	195 - 908	1610	Met-1 to Ser-7.	AR055: 9, AR060: 5, AR052: 5, AR061: 4, AR033: 4, AR096: 3, AR053: 3, AR089: 3, AR104: 1, AR039: 1 H0521: 3, L0731: 3, H0591: 2, H0436: 2, H0422: 2, H0170: 1, S0001: 1, H0459: 1, S0046: 1, S0476: 1, H0610: 1, H0013: 1, H0635: 1, H0271: 1, H0622: 1, H0560: 1, H0699: 1, S0152: 1, L0747: 1, S0434:				H0050: 1, H0687: 1, S0214: 1, L0483: 1, H0032: 1, S0364: 1, L0455: 1, H0708: 1, H0591: 1, H0038: 1, H0264: 1, H0641: 1, H0647: 1, H0529: 1, L0761: 1, L0771: 1, L0662: 1, L0803: 1, L0650: 1, L0774: 1, L0805: 1, L0776: 1, L0659: 1, L0540: 1, L0783: 1, L0789: 1, L0790: 1, L0793: 1, L0665: 1, H0144: 1, H0547: 1, H0672: 1, H0539: 1, S0152: 1, L0750: 1, L0757: 1, L0758: 1, S0308: 1, S0011: 1, S0242: 1 and H0721: 1.			180-197
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196	HTPCT63	747208	206	53 - 556	1611	Tyr-14 to Glu-19, Lys-48 to Asp-91.	1, L0601: 1, H0542: 1 and H0543: 1. AR053: 21, AR052: 15, AR096: 13, AR089: 12, AR060: 10, AR055: 9, AR033: 9, AR104: 7, AR061: 6, AR039: 6 H0486: 2, L0747: 2, S0298: 1, H0392: 1, T0010: 1, H0039: 1, H0529: 1, L0766: 1, L0438: 1, L0731: 1, L0591: 1 and H0543: 1.				106-122
197	HE8NL29	750243	207	470 - 72	1612		AR089: 1, AR096: 0, AR060: 0, AR052: 0, AR104: 0, AR061: 0, AR053: 0, AR033: 0, AR039: 0. H0013: 2 and S0218: 1.				109-125, 6-22
198	HTTFM66	750750	208	117 - 434	1613		AR055: 8, AR053: 6, AR052: 6, AR060: 5, AR096: 4, AR061: 4, AR033: 4, AR039: 3, AR089: 3, AR104: 3 H0040: 2				62-96, 17- 48, 89-105
199	HE9EM20	751048	209	2 - 751	1614	Cys-175 to Val-181, Lys-184 to Arg-204, Gln-218 to Glu-227, Lys-233 to Phe-242.	AR055: 12, AR060: 12, AR061: 9, AR033: 8, AR104: 8, AR096: 7, AR089: 6, AR053: 5, AR052: 4, AR039: 4				112-128, 56-72

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201	HTGAU79	751677	211	203 - 961	1616	Ala-10 to Glu-18, Arg-26 to Arg-31, Phe-48 to Gln-53, Gly-77 to Glu-84, Met-130 to Gly-138, Tyr-225 to Ala-232.	1, H0574: 1, H0575: 1, H0590: 1, L0040: 1, H0051: 1, H0169: 1, H0674: 1, H0412: 1, L0645: 1, L0767: 1, L0666: 1, L0665: 1, H0547: 1, H0539: 1, H0478: 1, L0611: 1, L0741: 1, L0750: 1 and S0434: 1.					175-192, 94-110
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202	HETAJ12	751735	212	17 - 463	1617	Pro-26 to Pro-31, Pro-119 to Asp-124, Gln-132 to Leu-140, Arg-143 to Pro-149.	H0435: 1, H0672: 1, H0436: 1, S3014: 1, S0028: 1, L0750: 1, L0777: 1, S0436: 1, L0366: 1, H0667: 1 and H0423: 1. AR055: 3, AR033: 2, AR104: 2, AR060: 2, AR053: 2, AR039: 2, AR089: 1, AR061: 1, AR096: 1, AR052: 0 H0046: 2, H0431: 1, S0428: 1 and H0660: 1.				69-103, 90-106, 1- 17
203	HDABX16	752630	213	64 - 456	1618		AR096: 8, AR052: 7, AR039: 6, AR053: 6, AR033: 5, AR089: 4, AR055: 4, AR104: 3, AR061: 3, AR060: 3 H0618: 9, L0751: 7, L0754: 6, L0758: 6, H0253: 5, L0748: 5, L0439: 5, H0580: 3, H0052: 3, L0770: 3, L0663: 3, H0556: 2, S0418: 2, H0733: 2, H0351: 2, H0706: 2, H0567: 2, H0625: 2, S0144: 2, S0142: 2, L0659: 2, L0543: 2, L5623: 2, L0749: 2, S0436: 2, H0423: 2, H0381: 1, S0212: 1, H0254: 1, H0663:				57-76, 114-130

204	HFEBM11	753105	214	27 - 458	1619	Asp-20 to Glu-26,	1, H0638: 1, S0045: 1, S0046: 1, S0476: 1, S6022: 1, H0549: 1, H0550: 1, S0222: 1, H0370: 1, H0497: 1, H0574: 1, L0622: 1, L0623: 1, H0101: 1, H0427: 1, S0280: 1, H0122: 1, H0194: 1, H0596: 1, H0570: 1, H0081: 1, H0620: 1, H0014: 1, H0083: 1, H0355: 1, H0510: 1, H0424: 1, H0030: 1, H0553: 1, H0628: 1, S0364: 1, S0366: 1, H0038: 1, H0551: 1, H0100: 1, L0351: 1, H0494: 1, S0438: 1, H0633: 1, S0422: 1, L0371: 1, L0769: 1, L0639: 1, L0772: 1, L0648: 1, L0497: 1, L0375: 1, L0511: 1, L0666: 1, H0144: 1, H0520: 1, H0593: 1, H0682: 1, H0670: 1, H0672: 1, H0539: 1, H0521: 1, S0044: 1, H0555: 1, H0626: 1, H0732: 1, S3012: 1, S3014: 1, S0027: 1, S0028: 1, L0779: 1, L0584: 1, L0608: 1, L0593: 1, H0667: 1 and H0542: 1.	AR033: 12, AR055: 11,	5q31.1	131400,	110-136
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					Asp-48 to Tyr-57, Asn-59 to Gly-66, Ala-69 to Gly-76, Ser-91 to Asn-97.		AR089: 10, AR052: 9, AR061: 9, AR053: 8, AR060: 8, AR096: 4, AR039: 3, AR104: 0 H0081: 1, H0509: 1 and S0330: 1.		147061, 147575, 147575, 147575, 153455, 159000, 181460, 600807, 601596, 602089	
205	HHGBS74	753235	215	979 - 1584	Ser-26 to Asn-35, Gly-95 to Pro-100, Arg-115 to Gln-126, Arg-132 to Asp-137, Val-183 to Ser-188.	1620	AR052: 297, AR053: 285, AR096: 212, AR039: 173, AR089: 146, AR055: 106, AR104: 92, AR060: 90, AR061: 69, AR033: 67 H0169: 4, L0529: 2, H0624: 1, H0341: 1, H0333: 1, H0013: 1, H0266: 1, H0674: 1, H0269: 1, S0440: 1, L0770: 1, L0809: 1, L0780: 1 and L0758: 1.			76-93, 38- 54
206	HTAAT39	753289	216	456 - 959	Ser-50 to Thr-55, Ser-67 to Asp-72, Ala-105 to Ser-110, Gln-139 to Lys-149, Arg-152 to Ser-166.	1621	AR104: 1068, AR061: 633, AR060: 627, AR055: 507, AR033: 469, AR089: 444, AR052: 279, AR039: 276, AR096: 237, AR053: 231 H0069: 5 and H0634: 1.			108-139
207	HHSFO30	754184	217	9 - 317	Gly-15 to His-27, Pro-35 to Ser-44.	1622	AR104: 18, AR033: 16, AR055: 9, AR060: 7,			46-63



208	HTAFE69	754529	218	34 - 366	1623	Lys-11 to Glu-29.	AR061: 7, AR052: 6, AR089: 6, AR053: 4, AR096: 4, AR039: 4 L0471: 1, S0388: 1, H0633: 1 and L0591: 1.				55-74, 88-104
209	HMSCM47	756579	219	218 - 1390	1624	Asp-44 to His-54, Gly-92 to Lys-98, Gln-110 to Gly-115, Tyr-135 to Gly-140, Gly-162 to Ala-167.	AR053: 11, AR096: 9, AR052: 8, AR089: 6, AR104: 6, AR060: 5, AR055: 4, AR039: 4, AR033: 4, AR061: 3 H0521: 2, H0170: 1, S0134: 1, H0662: 1, S0354: 1, H0580: 1, H0619: 1, S0278: 1, H0574: 1, H0599: 1, H0590: 1, H0596: 1, L0471: 1, H0024: 1, H0014: 1, L0163: 1, H0644: 1, H0551: 1, S0002: 1, H0658: 1, L0602: 1, H0522: 1, S3014: 1, L0731: 1, L0601: 1 and L0366: 1.				324-340, 235-251, 64-80, 344-360
210	HETLM70	756676	220	337 -	1625		AR055: 10, AR089: 8,				100-130,

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211	HLYEN32	756950	221	21 - 407	1626	Leu-64 to Ala-75.	AR089: 5, AR052: 5, AR033: 4, AR053: 4, AR096: 3, AR061: 3, AR104: 2, AR060: 2, AR055: 2, AR039: 2 H0556: 4, H0169: 3, L0766: 3, L0742: 3, L0747: 3, S0360: 2, S0046: 2, H0587: 2, L0483: 2, T0006:			111-129, 95-111

212	HHFHU45	757207	222	234 - 659	1627	Gly-9 to Leu-25.	2, H0488: 2, H0059: 2, L0646: 2, S0404: 2, L0748: 2, L0439: 2, L0751: 2, H0542: 2, H0265: 1, S0040: 1, H0341: 1, S0444: 1, S0045: 1, S0132: 1, S0222: 1, H0438: 1, S0280: 1, H0599: 1, S0346: 1, H0052: 1, H0014: 1, L0163: 1, H0083: 1, H0687: 1, S0250: 1, H0328: 1, H0039: 1, L0455: 1, H0040: 1, H0551: 1, H0623: 1, H0633: 1, H0647: 1, S0002: 1, L0761: 1, L0771: 1, L0662: 1, L0659: 1, L0787: 1, L0793: 1, L0666: 1, L0664: 1, L0665: 1, H0144: 1, H0701: 1, H0520: 1, H0519: 1, S0126: 1, H0682: 1, H0672: 1, H0539: 1, S0380: 1, H0518: 1, H0696: 1, H0436: 1, S0028: 1, L0754: 1, L0750: 1, L0756: 1, L0752: 1, L0757: 1, L0758: 1, L0759: 1, H0445: 1, S0436: 1 and H0543: 1.					83-99, 111-127
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214	HDPPA45	757472	224	148 - 891	1629	Ser-63 to Glu-72, Asn-123 to Thr-130, Pro-209 to Pro-215.	1, H0052: 1, H0135: 1, H0063: 1, H0494: 1, L0794: 1, L0649: 1, S0037: 1, L0439: 1, L0747: 1, S0434: 1 and H0506: 1. AR061: 1, AR096: 1, AR053: 0, AR089: 0, AR033: 0, AR055: 0, AR039: 0, AR060: 0, AR052: 0, AR104: 0 H0031: 3, L0800: 3, L0794: 3, L0666: 2, L0751: 2, H0265: 1, S0376: 1, H0559: 1, H0486: 1, H0156: 1, L0021: 1, H0599: 1, S0049: 1, H0545: 1, H0213: 1, H0059: 1, L0761: 1, L0649: 1, L0803: 1, L0655: 1, L4507: 1, H0723: 1, H0593: 1, H0539: 1, H0522: 1, L0756: 1, L0779: 1, L0755: 1, L0096: 1 and H0506: 1.				156-172, 186-204, 85-101
215	HMAGC74	757601	225	87 - 437	1630		AR053: 9, AR052: 8, AR089: 6, AR055: 5, AR033: 5, AR096: 4, AR060: 3, AR061: 3, AR039: 2, AR104: 1 H0638: 5, L0761: 4,				59-76, 26- 42

	H0556: 3, S0278: 2, H0013: 2, H0545: 2, H0622: 2, S0344: 2, S0002: 2, L0770: 2, L0769: 2, L0803: 2, L0774: 2, L0805: 2, L0789: 2, H0547: 2, H0521: 2, H0522: 2, H0187: 2, L0439: 2, L0740: 2, L0749: 2, L0758: 2, L0592: 2, H0159: 1, S0040: 1, S0114: 1, H0484: 1, H0255: 1, S0358: 1, H0619: 1, H0550: 1, H0559: 1, H0575: 1, H0618: 1, S0010: 1, H0052: 1, H0544: 1, H0546: 1, H0051: 1, H0252: 1, L0483: 1, H0030: 1, H0124: 1, H0135: 1, H0087: 1, L0351: 1, H0494: 1, H0561: 1, S0448: 1, H0641: 1, H0538: 1, L0646: 1, L0800: 1, L0642: 1, L0773: 1, L0794: 1, L0804: 1, L0775: 1, L0784: 1, L0628: 1, L0659: 1, L0666: 1, L0664: 1, L0665: 1, H0144: 1, H0689: 1, H0682: 1, L0743: 1, L0748: 1, L0745: 1, L0759: 1, L0601: 1, S0192: 1 and L0698: 1.					
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216	HHFR79	759851	226	37 - 813	1631	Ser-51 to Phe-57.	AR053: 4, AR052: 4, AR055: 4, AR096: 3, AR089: 3, AR033: 3, AR060: 3, AR061: 2, AR104: 2, AR039: 0 H0657: 2, H0485: 2, L0163: 2, H0356: 2, H0488: 2, L0763: 2, L0637: 2, L0646: 2, L0766: 2, L0754: 2, L0756: 2, L0591: 2, T0002: 1, H0497: 1, H0036: 1, H0590: 1, H0050: 1, H0071: 1, H0266: 1, S0003: 1, H0644: 1, L0142: 1, H0628: 1, S0438: 1, H0509: 1, S0422: 1, L0662: 1, L0794: 1, L0655: 1, L0657: 1, L0382: 1, L0665: 1, H0682: 1, H0659: 1, S0378: 1, S0146: 1, S0406: 1, L0779: 1, L0596: 1, S0106: 1, S0011: 1, S0242: 1, H0543: 1 and S0424: 1.			238-254
217	HMGBP83	759888	227	162 - 1289	1632	Lys-7 to Pro-14.	AR055: 6, AR060: 4, AR061: 3, AR089: 3, AR033: 3, AR052: 2, AR053: 2, AR096: 2, AR104: 2, AR039: 1 S0376: 1, H0580: 1, H0614: 1, H0284: 1, H0268:			259-293, 138-159, 36-57, 102-127, 235-252, 70-86, 325-341

218	HAUBV24	760121	228	179 - 574	1633	Phe-60 to Gly-67.	1, H0412: 1, H0623: 1, T0042: 1, S0126: 1, H0539: 1, H0521: 1 and L0779: 1. AR061: 6, AR055: 4, AR060: 3, AR033: 3, AR039: 3, AR052: 3, AR089: 3, AR096: 2, AR053: 1, AR104: 1 L0749: 5, L0752: 5, L0748: 4, H0510: 2, S0440: 2, L0800: 2, S0436: 2, H0294: 1, H0393: 1, L0803: 1, L0774: 1, L0383: 1, L0789: 1 and L0779: 1.			7-37, 31- 51, 67-90, 105-121
219	HWBAQ71	760146	229	90 - 392	1634		AR039: 6, AR053: 4, AR089: 3, AR104: 3, AR096: 3, AR052: 3, AR033: 2, AR055: 2, AR060: 2, AR061: 2 H0580: 1 and L0601: 1.			72-101, 32-53
220	HRACE71	760240	230	146 - 457	1635		AR039: 25, AR096: 18, AR089: 18, AR053: 12, AR060: 11, AR104: 11, AR052: 10, AR033: 10, AR055: 6, AR061: 3 S0050: 1 and H0555: 1.			57-73, 4- 20
221	HADGC71	760321	231	20 - 460	1636	Met-1 to Glu-9, Ser-18 to Ile-26.	AR089: 1, AR060: 1, AR033: 1, AR053: 0, AR039: 0, AR096: 0,			103-119



222	HSXFL85	760494	232	69 - 566	1637	Phe-8 to Gly-21.	AR061: 0, AR052: 0, AR104: 0, AR055: 0 H0427: 1 and H0328: 1. AR052: 7, AR096: 6, AR089: 4, AR060: 4, AR053: 4, AR055: 4, AR033: 3, AR104: 2, AR061: 2, AR039: 1 H0251: 5, H0543: 5, H0624: 4, H0170: 4, S0222: 4, H0013: 3, S0003: 3, H0615: 3, H0519: 3, T0049: 2, H0051: 2, H0553: 2, H0131: 2, S0422: 2, S0426: 2, H0659: 2, L0752: 2, S0026: 2, H0171: 1, H0556: 1, H0686: 1, H0650: 1, S0116: 1, H0671: 1, S0376: 1, S0046: 1, H0369: 1, H0497: 1, H0156: 1, H0599: 1, H0042: 1, H0575: 1, S0182: 1, S0049: 1, H0596: 1, H0572: 1, H0015: 1, L0163: 1, S0388: 1, S0051: 1, S6028: 1, H0266: 1, H0328: 1, H0424: 1, H0032: 1, H0673: 1, S0036: 1, H0038: 1, H0040: 1, H0551: 1, T0041: 1, S0210: 1, S0002: 1, H0529: 1, L0763:					82-107
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223	HNGDQ71	760510	233	114 - 446	1638				1, L0807: 1, L0517: 1, H0520: 1, H0660: 1, H0672: 1, S0328: 1, H0696: 1, L0741: 1, L0742: 1, L0439: 1, L0756: 1, L0780: 1, L0731: 1, S0434: 1, S0196: 1 and H0422: 1.				86-105, 40-56	
224	HTOJT28	760822	234	113 - 550	1639	Trp-30 to Ser-36, Lys-54 to Lys-59, Thr-84 to Asn-89.			AR055: 2, AR033: 2, AR060: 2, AR061: 1, AR089: 1, AR096: 1, AR052: 0, AR053: 0, AR039: 0, AR104: 0 S0031: 3, H0624: 1, S6026: 1, S0278: 1, S0222: 1, S0051: 1, H0416: 1, H0644: 1, S0052: 1, S0053: 1, S0028: 1, S0032: 1 and S0260: 1. AR039: 19, AR053: 9, AR033: 8, AR055: 8, AR096: 7, AR052: 7, AR089: 6, AR060: 6, AR104: 5, AR061: 4 L0740: 8, H0617: 4, L0804: 3, H0068: 2, L0803: 2, H0547: 2, L0747: 2, L0779: 2, H0587: 1, H0581: 1, S0003: 1, H0264: 1, L0649: 1, L0774: 1, L0653:				127-144	

225	HSDZF13	760890	235	532 - 924	1640	Gly-8 to Ser-14.	<p>1, L0655: 1 and L0362: 1.</p> <p>AR061: 9, AR060: 5,</p> <p>AR033: 5, AR052: 5,</p> <p>AR055: 5, AR096: 5,</p> <p>AR104: 5, AR053: 4,</p> <p>AR089: 3, AR039: 0</p> <p>L0777: 5, S0436: 5, S0116:</p> <p>3, L0805: 3, L0809: 3,</p> <p>H0696: 3, H0423: 3, S0282:</p> <p>2, S0354: 2, H0083: 2,</p> <p>H0316: 2, L0763: 2, L0767:</p> <p>2, L0776: 2, S0406: 2,</p> <p>L0779: 2, S0114: 1, H0657:</p> <p>1, H0656: 1, S0358: 1,</p> <p>S0444: 1, S0360: 1, H0340:</p> <p>1, S0046: 1, H0619: 1,</p> <p>H0455: 1, H0333: 1, H0574:</p> <p>1, H0559: 1, T0109: 1,</p> <p>H0156: 1, L0021: 1, T0074:</p> <p>1, H0318: 1, S0474: 1,</p> <p>S0049: 1, H0327: 1, H0530:</p> <p>1, H0615: 1, H0553: 1,</p> <p>H0673: 1, H0708: 1, H0059:</p> <p>1, L0065: 1, S0438: 1,</p> <p>H0207: 1, S0422: 1, L0520:</p> <p>1, L0769: 1, L0761: 1,</p> <p>L0521: 1, L0774: 1, L0655:</p> <p>1, L0659: 1, L0526: 1,</p> <p>L0793: 1, L0666: 1, L0664:</p> <p>1, H0659: 1, H0518: 1,</p>			91-109, 115-131
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226	HTOBH39	761762	236	47 - 919	1641	Ala-14 to Arg-19, Val-23 to Pro-38, Ser-44 to Gln-53, Pro-69 to Thr-80.	S0176: 1, H0478: 1, L0748: 1, L0750: 1, L0755: 1, L0731: 1, L0608: 1, L0362: 1, S0026: 1 and S0242: 1. AR053: 21, AR052: 19, AR096: 14, AR055: 13, AR089: 13, AR033: 11, AR060: 9, AR061: 8, AR104: 7, AR039: 3 L0766: 7, L0439: 7, L0752: 4, L0731: 4, L0438: 3, L0748: 2, L0753: 2, S0276: 2, S0430: 1, S0212: 1, S0358: 1, H0637: 1, S0222: 1, H0486: 1, H0042: 1, L0040: 1, S0051: 1, S0214: 1, H0634: 1, H0272: 1, H0100: 1, H0625: 1, H0130: 1, L0773: 1, L0783: 1, L0791: 1, H0666: 1, S3012: 1, L0780: 1 and H0542: 1.	87-103	
227	HE9RP73	761860	237	105 - 506	1642	Val-24 to Gly-35, Gly-48 to Ser-59, Ser-123 to Arg-134.	AR061: 5, AR053: 3, AR055: 1, AR052: 1, AR033: 1, AR060: 1, AR089: 1, AR096: 0, AR039: 0, AR104: 0 S0114: 1, H0549: 1 and H0144: 1.	64-82	

228	HSXDG07	762023	238	78 - 692	1643	Leu-22 to Asn-32, Leu-34 to Pro-39, Glu-80 to Ser-86.	AR055: 10, AR060: 8, AR052: 7, AR061: 7, AR089: 6, AR053: 5, AR096: 5, AR033: 5, AR104: 4, AR039: 4 L0748: 7, L0439: 4, S0410: 3, L0438: 3, L0756: 3, H0252: 2, L0803: 2, L0666: 2, L0754: 2, H0657: 1, S0360: 1, H0431: 1, H0333: 1, H0014: 1, H0328: 1, L0483: 1, L0142: 1, S0036: 1, H0040: 1, L0598: 1, L0764: 1, L0662: 1, L0794: 1, L0766: 1, L0774: 1, L0653: 1, L0659: 1, L0790: 1, L0352: 1, H0519: 1, L0747: 1, L0749: 1, L0750: 1, L0777: 1, S0192: 1, H0543: 1 and H0423: 1.				111-128, 89-105, 2- 18
229	HDPHG57	764498	239	80 - 436	1644	Leu-60 to Asp-68, Ile-75 to Val-82.	AR039: 2, AR033: 1, AR089: 1, AR096: 1, AR055: 1, AR060: 0, AR061: 0, AR053: 0 L0759: 6, L0766: 5, H0052: 4, L0770: 4, L0439: 4, L0740: 4, L0747: 4, H0657: 3, S0358: 3, S0003: 3, L0769: 3, L0754: 3, S0376: 2, H0590: 2, H0040:	6q14	136550, 203310, 269920, 602772	37-57	

								2, H0616: 2, L0776: 2, L0665: 2, H0658: 2, H0521: 2, H0522: 2, L0756: 2, L0755: 2, L0758: 2, H0445: 2, S0242: 2, H0686: 1, H0717: 1, S6024: 1, S0116: 1, S0282: 1, H0663: 1, S0360: 1, H0393: 1, S6026: 1, H0351: 1, H0431: 1, H0438: 1, H0607: 1, H0642: 1, H0632: 1, H0486: 1, L0021: 1, H0575: 1, H0581: 1, H0597: 1, H0014: 1, H0071: 1, H0266: 1, H0188: 1, H0622: 1, H0166: 1, H0169: 1, H0090: 1, H0509: 1, S0142: 1, H0695: 1, H0529: 1, L0369: 1, L0763: 1, L0772: 1, L0794: 1, L0649: 1, L0803: 1, L0804: 1, L0775: 1, L0805: 1, L0653: 1, L0809: 1, L0666: 1, L0663: 1, H0144: 1, L0565: 1, H0547: 1, S0126: 1, S0328: 1, H0539: 1, S0152: 1, H0555: 1, H0436: 1, S3014: 1, L0750: 1, L0752: 1, L0757: 1, L0591: 1, L0592: 1, L0599: 1, S0196: 1, H0543: 1, H0422:
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230	HGBAD15	765442	240	1220 - 267	1645			1 and H0506: 1, AR096: 1, AR055: 1, AR033: 1, AR089: 1, AR060: 1, AR061: 0, AR052: 0, AR039: 0, AR053: 0, AR104: 0 L0748: 10, L0805: 5, L0750: 3, L0777: 3, H0616: 2, S0422: 2, L0803: 2, L0804: 2, H0520: 2, H0547: 2, H0519: 2, L0744: 2, L0779: 2, L0752: 2, L0731: 2, L0581: 2, S0282: 1, S0360: 1, H0411: 1, H0431: 1, H0042: 1, H0581: 1, H0251: 1, H0596: 1, H0597: 1, H0172: 1, H0123: 1, H0050: 1, H0620: 1, H0014: 1, H0051: 1, L0177: 1, S0003: 1, H0328: 1, H0428: 1, H0553: 1, H0169: 1, H0124: 1, L0378: 1, L0776: 1, L0657: 1, L0791: 1, L0438: 1, H0690: 1, H0521: 1, H0522: 1, L0356: 1, L0439: 1, L0756: 1, L0780: 1, L0753: 1, L0759: 1, S0106: 1 and S0026: 1.				126-142
231	HOEEP07	766074	241	68 -	1646	Asp-3 to Arg-8,		AR096: 18, AR053: 16, S0106: 1 and S0026: 1.			182-199,	

				Gly-22 to Tyr-30, Gly-117 to Val-123, Glu-256 to Glu-271.	AR052: 13, AR060: 13, AR104: 12, AR061: 12, AR089: 10, AR055: 9, AR033: 8, AR039: 7 L0748: 11, L0766: 6, L0439: 6, L0758: 6, L0757: 5, L0794: 4, L0756: 4, L0755: 4, L0805: 3, L0776: 3, S0212: 2, S0010: 2, L0471: 2, S0003: 2, L0143: 2, L0770: 2, L0769: 2, L0803: 2, S0126: 2, L0740: 2, L0759: 2, L0591: 2, L0608: 2, H0685: 1, H0657: 1, H0656: 1, H0341: 1, H0638: 1, S0358: 1, S0360: 1, S0046: 1, S0222: 1, H0497: 1, H0486: 1, T0109: 1, S0474: 1, H0581: 1, H0544: 1, H0009: 1, H0051: 1, H0594: 1, H0032: 1, H0674: 1, H0124: 1, H0038: 1, H0616: 1, H0551: 1, H0488: 1, L0351: 1, H0560: 1, S0150: 1, S0422: 1, L0763: 1, L0761: 1, L0662: 1, L0809: 1, L0787: 1, L0788: 1, L0789: 1, L0666: 1, L0665: 1, H0547: 1, H0658: 1, H0648: 1, S0378:			32-48
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232	HFIHT50	766558	242	19 - 378	1647	Met-1 to Arg-6.	1, H0522: 1, S0146: 1, L0747: 1, L0750: 1, L0752: 1, L0731: 1, H0445: 1, L0588: 1, S0026: 1, S0192: 1, S0276: 1 and H0008: 1. AR096: 2, AR055: 1, AR089: 1, AR060: 1, AR061: 0, AR052: 0, AR053: 0, AR039: 0, AR033: 0, AR104: 0 H0265: 2, L0766: 2, H0656: 1, H0341: 1, H0581: 1, H0634: 1 and S0194: 1.				102-118	
233	HANGD38	766868	243	905 - 1387	1648	Ser-42 to Arg-47, Thr-115 to Ser-127, Ser-130 to Trp-136.	AR089: 11, AR096: 11, AR060: 7, AR052: 4, AR053: 3, AR033: 3, AR055: 2, AR061: 1, AR104: 1, AR039: 0 H0024: 3, H0622: 3, H0265: 1, S0358: 1, H0486: 1, H0150: 1, H0050: 1, S0316: 1, H0100: 1, H0144: 1, S0328: 1 and L0743: 1. H0265: 1, S0358: 1, H0486: 1, H0150: 1, H0050: 1, S0316: 1, H0100: 1, H0144: 1, S0328: 1 and L0743: 1.				55-77, 75- 91	
234	HPMGQ75	767356	244	299 - 832	1649	Asp-9 to Ile-22, Ser-64 to Leu-69, Thr-91 to Ser-100, Lys-162 to Gln-172.	AR055: 11, AR053: 6, AR060: 6, AR096: 6, AR033: 6, AR061: 6, AR052: 4, AR104: 4, AR089: 4, AR039: 3 H0424: 16, S0380: 13,	22q13.2- q13.31	188826, 250100, 250800, 250800		100-120	

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[illegible]

[illegible]

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236	HEGBB78	768346	246	1022 - 672	1651	Lys-17 to Cys-29, Thr-69 to Cys-79, Arg-92 to Gly-99.	H0539: 1 and L0589: 1. AR033: 8, AR055: 7, AR052: 5, AR053: 4, AR061: 4, AR060: 4, AR089: 4, AR096: 3, AR104: 3, AR039: 0 L0731: 5, L0758: 5, H0620: 3, L0766: 3, S0360: 2, S0002: 2, L0809: 2, L0791: 2, L0748: 2, L0439: 2, L0747: 2, L0601: 2, H0556: 1, S0282: 1, H0125: 1, S0408: 1, H0549: 1, H0550: 1, S0222: 1, H0592: 1, T0114: 1, H0581: 1, H0596: 1, S6028: 1, H0622: 1, H0135: 1, H0087: 1, H0059: 1, H0529: 1, L0769: 1, L0761: 1, L0372: 1, L0646: 1, L0804: 1, L0774: 1, L0776: 1, L0783: 1, L0543: 1, H0670: 1, H0555: 1, S3012: 1, L0757: 1, S0260: 1, L0596: 1 and L0361: 1.				32-55
237	HJBC01	768776	247	26 - 361	1652		AR039: 2, AR096: 2, AR055: 2, AR104: 1, AR033: 1, AR061: 1, AR089: 0, AR053: 0,				44-92, 1- 24, 76-92, 41-57

238	HHGCP75	769003	248	25 - 471	1653	Gly-140 to Glu-149.	AR060: 0, AR052: 0 H0561: 1 AR055: 8, AR060: 6, AR033: 6, AR061: 5, AR096: 5, AR104: 4, AR089: 4, AR052: 3, AR039: 3, AR053: 3 L0731: 17, L0439: 9, H0056: 8, L0438: 6, L0759: 6, L0157: 4, H0644: 4, S0010: 3, L0774: 3, L0747: 3, S0346: 2, H0309: 2, S0003: 2, S0002: 2, L0646: 2, L0803: 2, L0804: 2, H0539: 2, S0406: 2, L0748: 2, L0754: 2, L0745: 2, L0779: 2, L0777: 2, L0780: 2, L0752: 2, H0556: 1, T0049: 1, H0580: 1, S0045: 1, S0300: 1, H0411: 1, S0222: 1, H0391: 1, H0333: 1, S0474: 1, L0109: 1, H0196: 1, H0596: 1, H0050: 1, L0471: 1, H0014: 1, H0373: 1, H0020: 1, S0051: 1, H0687: 1, L0483: 1, H0553: 1, H0674: 1, H0163: 1, H0038: 1, H0059: 1, H0625: 1, H0561: 1, S0144: 1, H0538: 1, S0426: 1,	7q35-q36	118425, 118425, 118425, 142335, 152427, 163729, 176450, 180105, 190605, 276000, 276000, 600510, 600725	119-137
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239	HAIDO95	771350	249	24 - 1031	1654	Pro-17 to Trp-26, Pro-76 to Arg-81, Asp-99 to Gly-106, Pro-148 to His-157, Glu-178 to Glu-185, Leu-195 to Pro-201.	L0770: 1, L0769: 1, L0764: 1, L0766: 1, L0809: 1, L0791: 1, L0792: 1, H0519: 1, H0521: 1, S0028: 1, L0751: 1, L0749: 1, L0750: 1, L0755: 1, H0668: 1, H0136: 1, H0423: 1 and H0422: 1.				252-269, 219-235, 121-137
							AR055: 20, AR033: 12, AR053: 11, AR052: 11, AR060: 10, AR089: 10, AR061: 9, AR096: 6, AR104: 3, AR039: 3 L0766: 11, L0769: 3, L0761: 3, L0655: 3, L0777: 3, L0780: 3, H0543: 3, H0556: 2, S0476: 2, H0039: 2, L0794: 2, L0804: 2, L0805: 2, L0787: 2, L0747: 2, L0362: 2, S0026: 2, H0542: 2, L0005: 1, S0356: 1, S0360: 1, H0580: 1, S0132: 1, H0318: 1, L0483: 1, H0032: 1, H0090: 1, H0634: 1, H0538: 1, L0770: 1, L0646: 1, L0771: 1, L5574: 1, L0388: 1, L0653: 1, L0606: 1, L0367: 1, L0789: 1, H0144: 1, H0436: 1, L0749: 1 and S0194: 1.				



240	HE8UD19	771648	250	19 - 759	1655	Lys-20 to Tyr-27, Tyr-35 to Ser-49.	AR096: 3, AR061: 2, AR033: 2, AR060: 1, AR053: 1, AR052: 1, AR055: 0, AR089: 0, AR104: 0 S0414: 5, L0663: 4, L0777: 4, L0803: 3, L0744: 3, L0752: 3, L0731: 3, L0526: 2, L0743: 2, L0740: 2, L0751: 2, L0756: 2, L0758: 2, H0686: 1, S0040: 1, H0650: 1, H0663: 1, H0370: 1, H0013: 1, L0021: 1, S0346: 1, H0251: 1, H0046: 1, S0051: 1, S0318: 1, H0687: 1, H0488: 1, H0412: 1, H0623: 1, H0059: 1, S0002: 1, L0763: 1, L0764: 1, L0766: 1, L0805: 1, L0659: 1, L0664: 1, L0665: 1, H0690: 1, H0435: 1, H0659: 1, H0521: 1, H0522: 1, L0759: 1, S0031: 1, H0543: 1 and S0446: 1.	8q21	124080, 202010, 202010, 214400, 602476, 602667	132-150, 78-94
241	HMAIT58	771900	251	79 - 432	1656	Met-1 to Gly-16, Ser-32 to Lys-38, Ser-64 to Lys-84.	AR096: 17, AR055: 9, AR060: 8, AR039: 7, AR061: 6, AR033: 6, AR052: 6, AR053: 5, AR089: 5, AR104: 4 L0766: 3, S0358: 2, S0278:		36-65	

242	HDAAE77	772217	252	104 - 1435	1657				2, L0775: 2, L0756: 2, H0650: 1, H0656: 1, H0402: 1, H0013: 1, S0049: 1, H0644: 1, H0652: 1, S0142: 1, S0002: 1, L0770: 1, L0768: 1, L0649: 1, L0784: 1, L0776: 1, H0521: 1, H0522: 1 and H0555: 1.				402-418	
243	HKA0J07	772639	253	112 - 423	1658				AR055: 1, AR052: 1, AR053: 1, AR061: 1, AR089: 1, AR033: 1, AR104: 1, AR060: 1, AR096: 0, AR039: 0 L0439: 4, H0013: 2, H0497: 1, T0010: 1, T0041: 1, H0144: 1 and L0438: 1.				71-89, 19- 44	
244	HDTFC73	772840	254	983 -	1659	Leu-19 to Asn-29,	AR052: 2, AR053: 2,		AR096: 8, AR089: 6, AR052: 5, AR053: 5, AR039: 4, AR033: 3, AR060: 2, AR104: 2, AR055: 2, AR061: 1 L0750: 4, H0265: 3, L0794: 3, L0731: 3, H0635: 2, H0494: 2, L0766: 2, S0116: 1, H0052: 1, H0264: 1, S0002: 1, L0769: 1, L0764: 1, L0768: 1, H0144: 1, L0608: 1 and L0601: 1.				28-58	

245	HDTFI32	773040	255	74 - 538	1660	Glu-96 to Lys-101.	AR096: 1, AR089: 1, AR055: 1, AR104: 1, AR061: 1, AR033: 1, AR060: 1 L0439: 7, L0777: 3, S0007: 2, H0031: 2, L0438: 2, L0411: 1, H0662: 1, H0638: 1, S0222: 1, H0486: 1, L0021: 1, H0052: 1, T0010: 1, H0032: 1, H0268: 1, L0351: 1, L0766: 1, L0804: 1, L0655: 1, L0809: 1, S0216: 1 and H0522: 1.				
						Pro-13 to Ser-18.	AR096: 2, AR089: 2, AR104: 1, AR060: 1, AR052: 1, AR033: 0, AR039: 0, AR061: 0 S0476: 11, H0556: 10, H0265: 4, H0635: 4, H0657: 2, H0638: 2, S0132: 2, H0036: 2, L0601: 2, H0423: 2, H0713: 1, S0134: 1, S0298: 1, H0486: 1, H0069: 1, H0575: 1, T0082: 1, H0581: 1, L0471: 1, H0321: 1, H0591: 1, H0560: 1, H0641: 1, L0506: 1, L0775: 1, L0657: 1, H0435: 1, H0518: 1, H0521: 1, S0406: 1, L0749: 1 and H0543: 1.				44-60, 129-145

246	HLQCY70	773347	256	47 - 373	1661	Gly-5 to Gln-12, Lys-98 to Pro-106.	AR033: 46, AR055: 45, AR039: 38, AR053: 35, AR089: 34, AR052: 33, AR096: 26, AR061: 21, AR060: 21, AR104: 19 H0617: 9, L0751: 6, L0750: 5, L0752: 5, L0770: 4, L0747: 4, L0761: 3, L0775: 3, H0657: 2, S0358: 2, S0444: 2, H0457: 2, H0188: 2, H0181: 2, H0606: 2, L0769: 2, L0772: 2, L0764: 2, L0766: 2, L0774: 2, L0742: 2, L0748: 2, L0757: 2, L0758: 2, H0624: 1, H0685: 1, H0295: 1, S0114: 1, H0661: 1, S0140: 1, H0411: 1, S0278: 1, H0549: 1, H0587: 1, H0574: 1, H0013: 1, H0253: 1, H0318: 1, H0052: 1, H0309: 1, H0204: 1, H0545: 1, H0033: 1, H0424: 1, H0598: 1, H0135: 1, H0163: 1, H0616: 1, H0412: 1, H0059: 1, H0494: 1, H0560: 1, S0440: 1, S0144: 1, L5565: 1, L0373: 1, L0646: 1, L0768: 1, L0499: 1, L0497: 1, L0513: 1, L0783: 1,				48-64, 72- 88
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247	HELDG78	773740	257	2 - 301	1662	Lys-31 to Lys-39, Gln-41 to Lys-46, Pro-79 to Ala-85, Glu-95 to Leu-100.	L0384: 1, L0519: 1, L3872: 1, L0368: 1, L0665: 1, S0053: 1, H0144: 1, H0670: 1, H0672: 1, H0651: 1, H0696: 1, S0406: 1, L0740: 1, L0754: 1, L0780: 1, L0731: 1, L0596: 1, S0026: 1, H0543: 1, H0677: 1 and H0352: 1. AR055: 5, AR052: 3, AR061: 3, AR033: 3, AR060: 2, AR089: 2, AR039: 2, AR104: 2, AR053: 1, AR096: 1 S0045: 1, S0222: 1, H0250: 1, H0617: 1 and S0028: 1.					61-77	
248	HAGEK19	774276	258	649 - 41	1663		AR033: 13, AR104: 10, AR055: 7, AR060: 5, AR061: 5, AR052: 5, AR096: 4, AR089: 4, AR053: 3, AR039: 2 S0010: 4, S0222: 3, H0455: 2, L0803: 2, L0439: 2, L0745: 2, S0282: 1, S0400: 1, H0722: 1, H0456: 1, H0441: 1, S0346: 1, H0714: 1, H0509: 1, L0769: 1, L0793: 1, L0438: 1,					144-160, 99-115	

249	H2CBA34	774569	259	291 - 854	1664	Asp-20 to Leu-26, Gln-55 to Thr-60, Asn-74 to Asn-86.	L0756: 1, S0434: 1 and S0106: 1, AR055: 11, AR033: 9, AR060: 6, AR104: 6, AR096: 6, AR061: 5, AR089: 4, AR053: 4, AR052: 4, AR039: 3 L0740: 2, S0222: 1, T0082: 1, T0110: 1, T0010: 1, L0483: 1, L0763: 1, L0639: 1, L0747: 1, L0777: 1, L0758: 1 and L0599: 1.				114-130, 147-163
250	HDPTC79	774739	260	465 - 764	1665		AR052: 8, AR053: 7, AR033: 3, AR055: 3, AR096: 3, AR089: 2, AR061: 2, AR060: 2, AR104: 1, AR039: 0 L0777: 5, L0439: 2, L0596: 2, T0004: 1, L0658: 1, H0518: 1, H0521: 1, L0731: 1 and S0106: 1.				60-78, 17- 33
251	HTHBY73	775247	261	273 - 734	1666	Met-1 to Arg-7.	AR055: 17, AR033: 13, AR039: 12, AR052: 10, AR089: 10, AR053: 10, AR061: 9, AR060: 8, AR096: 7, AR104: 7 H0063: 1				90-116, 51-70, 79- 95, 21-37
252	HE8DL19	775419	262	152 - 592	1667	Gln-11 to Arg-21.	AR055: 2, AR089: 1, AR104: 1, AR060: 1,				44-65, 92- 112, 21-

								AR096: 0, AR061: 0, AR033: 0, AR053: 0, AR039: 0, AR052: 0 H0013: 1, S0214: 1, H0615: 1 and L0544: 1.				37, 124- 140
253	HMEGE46	775455	263	31 - 423	1668	Leu-12 to Thr-19, Arg-25 to Glu-39, Glu-41 to Cys-48, Ser-65 to Ser-71, Pro-84 to Gly-89, Ser-97 to Arg-103.		AR055: 7, AR052: 5, AR096: 5, AR060: 4, AR053: 3, AR033: 3, AR089: 3, AR104: 3, AR061: 3, AR039: 2 L0766: 8, L0777: 7, L0794: 5, L0770: 4, H0266: 3, L0803: 3, L0776: 3, H0144: 3, L0740: 3, L0754: 3, L0750: 3, S0222: 2, S0414: 2, H0013: 2, H0575: 2, H0590: 2, H0644: 2, L0769: 2, L0764: 2, L0662: 2, L0809: 2, L0789: 2, H0696: 2, L0439: 2, L0745: 2, S0026: 2, H0170: 1, H0556: 1, H0685: 1, H0713: 1, S0045: 1, H0411: 1, H0497: 1, L0021: 1, H0004: 1, H0052: 1, L0041: 1, H0083: 1, H0267: 1, H0615: 1, H0598: 1, H0591: 1, H0412: 1, H0560: 1, H0641: 1, L0796: 1, L0761: 1, L0771: 1, L0804: 1, L0775:			102-131	

							1, L0375: 1, L0806: 1, L0805: 1, L0659: 1, L0788: 1, L0666: 1, H0520: 1, H0660: 1, H0521: 1, H0522: 1, S0406: 1, H0555: 1, S0028: 1, L0747: 1, S0031: 1, L0608: 1, L0593: 1, H0668: 1, S0242: 1 and H0423: 1.				
254	HTEIA85	778081	264	125 - 1657	1669	Val-29 to Asp-34, Gln-78 to Gln-86, Val-94 to Leu-100, Glu-112 to Leu-117, Gln-119 to Ile-133, Glu-152 to Ala-157, Thr-159 to Gln-168, Lys-209 to Glu-218, Thr-225 to Ser-231, Trp-410 to Trp-415, Ala-505 to Ser-510.		AR055: 6, AR052: 6, AR053: 5, AR033: 4, AR060: 4, AR089: 4, AR061: 3, AR096: 3, AR104: 2, AR039: 2, L0748: 11, L0758: 11, L0594: 6, L0439: 5, L0759: 5, H0556: 4, L0769: 4, S0442: 3, H0036: 3, H0083: 3, H0124: 3, H0100: 3, L0662: 3, L0666: 3, L0756: 3, L0752: 3, H0170: 2, S0045: 2, H0644: 2, H0628: 2, H0038: 2, H0551: 2, L0564: 2, S0422: 2, L0770: 2, L0646: 2, L0771: 2, L0766: 2, L0649: 2, L0653: 2, L0659: 2, H0539: 2, L0740: 2, L0747: 2, L0749: 2, L0753: 2, L0757: 2, S0436: 2, L0584: 2, L0599:			349-366, 272-288, 380-396



255	HSHBF13	778087	265	270 -	1670	Ala-18 to Gln-28.	AR052: 16, AR055: 16, L0600: 1.	2, L0595: 2, H0686: 1, S0040: 1, H0295: 1, S0212: 1, H0255: 1, H0661: 1, S0444: 1, S0360: 1, H0580: 1, H0729: 1, S0046: 1, L0717: 1, S0278: 1, S0222: 1, H0587: 1, H0333: 1, H0427: 1, H0156: 1, H0575: 1, H0004: 1, H0253: 1, H0545: 1, H0046: 1, H0045: 1, H0051: 1, S0388: 1, H0594: 1, H0428: 1, H0673: 1, H0169: 1, H0674: 1, H0135: 1, H0040: 1, H0268: 1, L0351: 1, T0041: 1, S0382: 1, S0306: 1, S0440: 1, H0509: 1, S0144: 1, S0426: 1, H0743: 1, L0369: 1, L0638: 1, L0764: 1, L0765: 1, L0768: 1, L0388: 1, L0774: 1, L0657: 1, L5623: 1, L0790: 1, L0663: 1, L0664: 1, H0144: 1, L0438: 1, H0519: 1, H0648: 1, H0521: 1, H0522: 1, S0013: 1, H0436: 1, S3014: 1, S0027: 1, L0751: 1, L0779: 1, H0543: 1 and L0600: 1.						73-97,
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				707			AR053: 14, AR033: 12, AR060: 10, AR089: 8, AR096: 7, AR061: 7, AR104: 5, AR039: 4 H0046: 6, L0758: 5, L0794: 3, L0803: 3, L0779: 3, H0052: 2, H0424: 2, H0135: 2, L0809: 2, L0789: 2, H0690: 2, S3014: 2, L0743: 2, L0751: 2, L0731: 2, H0295: 1, S0001: 1, S0282: 1, H0484: 1, H0306: 1, S0360: 1, S0278: 1, S6022: 1, H0457: 1, H0031: 1, H0316: 1, H0038: 1, S0002: 1, L0800: 1, L0643: 1, L0764: 1, L0773: 1, L0650: 1, L0774: 1, L0655: 1, L0658: 1, L0659: 1, L0664: 1, L0665: 1, H0547: 1, H0435: 1, H0670: 1, S0037: 1, L0748: 1, L0599: 1 and L0601: 1.			108-134, 42-58
256	HLYCQ80	778291	266	539 - 240	1671	Lys-31 to Thr-39.	AR053: 1, AR060: 1, AR055: 1, AR033: 1, AR061: 0, AR089: 0, AR096: 0, AR052: 0, AR039: 0, AR104: 0 L0758: 13, L0756: 3, L0752: 3, L0438: 2, H0176:		52-72, 7- 23	

257	HE20F81	778504	267	162 - 611	1672	Met-1 to Gln-8, Leu-17 to Leu-29, Gln-109 to Thr-115.	1, H0261: 1, H0309: 1, H0081: 1, H0029: 1, H0038: 1, H0616: 1, H0202: 1, L0369: 1, L0766: 1, L0774: 1, L0776: 1, L0635: 1, L0809: 1, L0791: 1, H0547: 1, H0711: 1, H0690: 1, S0152: 1, H0479: 1, L0743: 1, L0439: 1, L0750: 1, L0777: 1, L0755: 1, H0445: 1 and L0588: 1. AR055: 13, AR060: 9, AR052: 9, AR061: 8, AR053: 8, AR033: 5, AR089: 4, AR096: 3, AR104: 2, AR039: 0 L0761: 3, L0439: 3, L0747: 3, L0766: 2, H0659: 2, L0779: 2, L0777: 2, H0170: 1, S0360: 1, H0550: 1, H0023: 1, H0018: 1, H0641: 1, L0763: 1, L0769: 1, L0764: 1, L0803: 1, L0774: 1, L0655: 1, L0666: 1, H0648: 1 and H0436: 1.				91-107
258	HTEBB88	779291	268	52 - 630	1673	Glu-53 to Asp-58, Trp-98 to Lys-103, Leu-131 to Arg-144.	AR052: 285, AR089: 170, AR096: 161, AR053: 143, AR060: 83, AR104: 64, AR033: 49, AR039: 43,				103-120

259	HWHGD8 2	779607	269	81 - 461	1674	Asn-14 to Ser-19, Asp-46 to Phe-51, Glu-101 to Asp-117, Ile-121 to Gly-127.	AR061: 42, AR055: 40 L0758: 6, H0616: 3, H0038: 2 and H0618: 1. AR039: 23, AR104: 18, AR033: 17, AR096: 10, AR052: 8, AR053: 7, AR055: 6, AR089: 6, AR060: 5, AR061: 4 L0754: 16, H0617: 8, S0360: 6, H0551: 6, L0748: 6, L0750: 6, H0543: 6, L0766: 5, L0666: 5, L0751: 5, L0747: 5, S0418: 4, H0553: 4, L0665: 4, H0542: 4, H0586: 3, S0414: 3, H0264: 3, H0494: 3, S0344: 3, L0769: 3, L0438: 3, H0547: 3, H0519: 3, H0521: 3, L0740: 3, L0757: 3, S0192: 3, H0656: 2, H0254: 2, H0255: 2, S0046: 2, S0132: 2, H0587: 2, H0559: 2, H0618: 2, H0620: 2, H0199: 2, H0688: 2, L0770: 2, L0372: 2, L0642: 2, L0771: 2, L0662: 2, L0653: 2, L0659: 2, L0783: 2, H0435: 2, H0660: 2, L0602: 2, H0436: 2, S3014: 2, L0731: 2, L0759: 2, L0588:	13q12	121011, 121011, 129500, 253700, 601885, 602221	18-44, 75- 96
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260	HWADH6 7	779663	270	143 - 628	1675	Glu-37 to Asn-44.	1, L0663: 1, S0428: 1, H0144: 1, H0593: 1, S0126: 1, H0690: 1, H0670: 1, S0328: 1, S0380: 1, S0350: 1, H0522: 1, S0188: 1, S0027: 1, S0206: 1, L0744: 1, L0439: 1, L0756: 1, L0777: 1, L0755: 1, H0445: 1, H0136: 1, S0042: 1 and L0697: 1. AR052: 5, AR053: 3, AR096: 3, AR033: 3, AR089: 2, AR060: 2, AR104: 2, AR061: 1, AR055: 0, AR039: 0 L0439: 7, L0759: 5, H0624: 4, H0170: 4, S0003: 4, L0766: 4, H0657: 3, H0013: 3, L0438: 3, H0068: 2, L0598: 2, L0646: 2, L0794: 2, L0659: 2, L0647: 2, L0666: 2, H0520: 2, L0747: 2, L0756: 2, L0779: 2, L0777: 2, L0588: 2, L0592: 2, H0171: 1, H0556: 1, S0376: 1, S0045: 1, S0222: 1, H0586: 1, T0114: 1, H0581: 1, L0471: 1, H0355: 1, S6028: 1, S0214: 1, H0615: 1, H0428: 1,						102-119
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261	HKADC82	779838	271	138 - 530	1676	Asn-3 to Phe-9.	H0039: 1, H0591: 1, H0040: 1, T0004: 1, L0763: 1, L0768: 1, L0774: 1, L0806: 1, L0789: 1, L0663: 1, L0665: 1, L0352: 1, H0519: 1, H0690: 1, H0648: 1, H0518: 1, H0521: 1, L0780: 1, L0753: 1, L0755: 1, L0731: 1, L0758: 1, L0596: 1, L0599: 1, L0593: 1, S0026: 1, H0667: 1 and H0543: 1.				86-110, 7-32, 65-82
262	HHESK83	780458	272	29 - 457	1677	Met-1 to Glu-10.	AR052: 3, AR053: 2, AR104: 2, AR089: 2, AR055: 2, AR039: 2, AR096: 2, AR053: 2, AR061: 1, AR060: 1, L0766: 5, H0494: 2, L0755: 2, L0800: 1, L0773: 1 and L0777: 1.				99-121, 124-140
263	HMIAT16	780804	273	822 - 502	1678	Pro-89 to Phe-96.	H0543: 1, AR033: 20, AR104: 16, AR055: 8, AR061: 7, AR060: 5, AR053: 5,				60-77, 22-38

264	HSLJK83	780819	274	149 - 763	1679	Asp-39 to Gln-44.	AR052: 5, AR089: 5, AR096: 4, AR039: 3 S0414: 3, S0036: 3, L0439: 3, H0327: 2, H0051: 2, S6028: 2, S0282: 1, H0406: 1, H0438: 1, S0010: 1, S0038: 1, S0260: 1 and S0412: 1.				
265	HADFW62	781376	275	29 - 340	1680	Pro-37 to Cys-42, Pro-52 to Gly-63.	AR053: 2, AR096: 1, AR089: 1, AR060: 1, AR104: 1, AR055: 1, AR033: 0, AR039: 0, AR061: 0, AR052: 0 H0164: 1 and S0390: 1.				9-29, 120- 136
266	HDTBV64	781623	276	24 - 401	1681	Ile-35 to Ser-44.	AR052: 3, AR096: 3, AR053: 2, AR089: 2, AR033: 2, AR039: 1, AR060: 1, AR104: 1, AR055: 1, AR061: 0 L0439: 2, L0747: 2, L0756: 2, H0556: 1, S0116: 1, H0333: 1, H0427: 1, H0156: 1, H0052: 1, S0210: 1, L0769: 1, L0646: 1, L0657: 1, L0384: 1, L0543: 1, H0670: 1, H0521: 1, H0478: 1, L0745: 1, L0749: 1, L0757: 1 and L0591: 1.				77-95, 10- 26
							AR033: 8, AR060: 6,				80-102, 1-



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267	HOHBR65	781821	277	225 - 578	1682	Met-1 to Gly-7, Pro-99 to Phe-104.	1, S0440: 1, S0426: 1, UNKWN: 1, L0598: 1, L0763: 1, L0769: 1, L0638: 1, L0761: 1, L0641: 1, L0776: 1, L0379: 1, L0657: 1, L0809: 1, L0519: 1, L0791: 1, L0663: 1, H0684: 1, H0672: 1, S0378: 1, H0522: 1, S0404: 1, S0406: 1, S0028: 1, L0750: 1, L0756: 1, L0753: 1, S0031: 1, H0445: 1, H0595: 1, S0436: 1, L0581: 1, L0608: 1, S0011: 1, S0026: 1, S0192: 1, S0196: 1, H0423: 1 and S0424: 1.						55-78, 31- 48
268	HRABZ84	782028	278	119 - 901	1683	Glu-46 to Asn-51, Gly-56 to Gly-63.	AR096: 1, AR052: 1, AR033: 1, AR060: 1, AR089: 1, AR061: 0, AR055: 0, AR053: 0, AR104: 0 H0009: 2, H0583: 1, S0045: 1 and S0250: 1. AR096: 6, AR053: 6, AR052: 4, AR089: 3, AR060: 2, AR039: 2, AR033: 2, AR055: 2, AR104: 2, AR061: 1 L0740: 8, L0749: 8,						207-223

	S0040: 4, L0766: 4, L0779: 4, L0471: 3, H0090: 3, H0040: 3, L0748: 3, L0752: 3, S0358: 2, H0644: 2, H0616: 2, L0763: 2, L0774: 2, L0659: 2, L0809: 2, H0144: 2, L0744: 2, L0754: 2, L0750: 2, L0777: 2, L0758: 2, H0686: 1, H0685: 1, H0583: 1, H0657: 1, H0662: 1, S0360: 1, S0046: 1, L0717: 1, H0351: 1, H0549: 1, H0586: 1, H0587: 1, H0013: 1, S0280: 1, H0156: 1, H0575: 1, H0318: 1, H0231: 1, H0046: 1, S6028: 1, H0266: 1, H0687: 1, S0003: 1, S0214: 1, H0063: 1, H0264: 1, H0641: 1, S0002: 1, S0426: 1, L0764: 1, L0662: 1, L0386: 1, L0775: 1, L0654: 1, L0665: 1, L0438: 1, H0519: 1, H0593: 1, H0365: 1, H0555: 1, L0439: 1, L0746: 1, L0747: 1, L0756: 1, L0780: 1, L0755: 1, S0308: 1, L0591: 1, L0362: 1, L0366: 1, S0026: 1, S0192: 1 and H0506: 1.
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269	HKABD18	782431	279	30 - 338	1684	Met-1 to Pro-6, Thr-18 to Ala-32, Gln-39 to Gly-44.	AR089: 47, AR096: 47, AR104: 33, AR053: 25, AR039: 23, AR052: 22, AR033: 22, AR060: 17, AR055: 4, AR061: 3 L0803: 2, L0748: 2, H0556: 1, S0134: 1, H0734: 1, S0010: 1, H0687: 1, H0428: 1, H0494: 1, L0662: 1, L0804: 1, L0776: 1, L0809: 1, L0787: 1, S0152: 1, H0522: 1, L0439: 1, L0756: 1, L0752: 1, L0758: 1, L0599: 1, L0601: 1 and H0543: 1.			51-67
270	HUFAJ06	783017	280	231 - 1040	1685	Met-1 to Arg-7, Pro-9 to Ile-17, Glu-26 to Tyr-38.	AR052: 5, AR053: 3, AR096: 2, AR089: 1, AR033: 1, AR055: 1, AR104: 1, AR060: 1, AR061: 1, AR039: 0 L0439: 5, L0770: 4, L0794: 4, L0758: 4, L0665: 3, H0657: 2, S0360: 2, H0039: 2, H0040: 2, H0551: 2, L0803: 2, L0747: 2, L0777: 2, H0423: 2, H0638: 1, S0420: 1, S0007: 1, H0050: 1, H0510: 1, H0594: 1, S0003: 1, H0264: 1, H0494: 1, H0560: 1, H0625:			45-61

271	HDQFV46	783316	281	77 - 667	1686	His-13 to Gln-20, Gly-27 to Ser-55, Glu-175 to Gly-187.	1, L0598: 1, L0648: 1, L0662: 1, L0768: 1, L0766: 1, L0804: 1, L0774: 1, H0547: 1, H0519: 1, H0435: 1, S0380: 1, L0759: 1, H0445: 1, H0542: 1 and H0506: 1.				123-142
272	HMEKH64	783318	282	139 - 1155	1687	Leu-26 to Gly-33, Glu-44 to Cys-49, Gln-54 to Ile-62, Glu-75 to Lys-80.	AR033: 3, AR052: 3, AR089: 3, AR060: 3, AR053: 2, AR096: 2, AR055: 1, AR039: 1, AR104: 1, AR061: 1 L0766: 12, H0659: 5, L0749: 5, S0410: 4, S0422: 4, H0650: 3, H0341: 3, H0032: 3, H0529: 3, L0646: 3, H0520: 3, H0547: 3, H0521: 3, L0748: 3, H0423: 3, H0657: 2, S0280: 2, H0266: 2, H0090: 2, H0040: 2, L0803: 2, L0804: 2, L0666: 2, H0658: 2, H0672: 2, L0756: 2, L0757: 2.				300-316, 176-192

273	HTLEE85	783631	283	51 - 413	1688	Gln-77 to Ala-82, Thr-90 to Asp-100, Leu-108 to Ala-120.	L0759: 2, S0424: 2, H0170: 1, H0556: 1, H0656: 1, S0001: 1, H0662: 1, S0418: 1, S0420: 1, S0444: 1, H0728: 1, S0045: 1, L0717: 1, H0486: 1, H0318: 1, H0596: 1, T0110: 1, H0024: 1, H0428: 1, H0616: 1, H0551: 1, H0560: 1, H0625: 1, S0440: 1, H0647: 1, L0520: 1, L0763: 1, L0764: 1, L0521: 1, L0774: 1, L0375: 1, L0805: 1, L0776: 1, L0655: 1, L0635: 1, L0809: 1, L0789: 1, L0663: 1, L0665: 1, S0374: 1, H0519: 1, H0435: 1, H0670: 1, H0134: 1, S0406: 1, H0555: 1, L0439: 1, L0750: 1, L0777: 1, L0752: 1, L0755: 1, L0758: 1, L0608: 1, H0542: 1 and H0422: 1. AR039: 10, AR055: 8, AR033: 7, AR053: 7, AR089: 6, AR052: 6, AR096: 5, AR060: 5, AR104: 5, AR061: 4 H0618: 3, H0052: 2, H0411: 1, H0333: 1, H0253: 1, H0622: 1, H0424: 1,						43-67, 17- 34
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274	HCE4Q82	783713	284	73 - 795	1689	Gly-10 to Arg-18, Leu-23 to Lys-30, Gly-53 to Pro-60, Asn-72 to Arg-81, Ser-86 to Lys-95, Glu-97 to Asp-105.	S0378: 1, L0749: 1 and S0436: 1. AR104: 12, AR096: 11, AR053: 10, AR055: 10, AR052: 9, AR060: 8, AR033: 7, AR089: 7, AR061: 5, AR039: 5 H0038: 5, H0616: 5, L0758: 5, S0003: 3, L0741: 3, S0278: 2, H0156: 2, H0052: 2, S0144: 2, S0344: 2, L0768: 2, S0218: 1, H0484: 1, H0638: 1, S0045: 1, S0046: 1, H0438: 1, H0562: 1, L0769: 1, L0794: 1, S0122: 1 and L0749: 1.				170-186, 120-136
275	HODEC95	783883	285	29 - 382	1690		AR055: 8, AR052: 7, AR089: 6, AR060: 6, AR096: 5, AR033: 5, AR104: 5, AR053: 4, AR039: 4, AR061: 4 H0615: 4 and H0556: 1. AR104: 240, AR061: 184, AR060: 129, AR033: 121, AR089: 99, AR053: 77, AR052: 76, AR055: 67, AR039: 62, AR096: 56 S0136: 8, L0754: 5, L0758: 5, L0768: 3, L0766:				67-89, 91- 107
276	HCBBA47	783892	286	1035 - 1340	1691	Thr-37 to Ser-43, Pro-62 to Asn-67, His-73 to Tyr-82, Pro-94 to Ser-102.					40-62, 19- 35

277	HSKEQ61	783939	287	577 - 2247	1692	Met-1 to Lys-6, Ser-31 to Ala-45, Cys-102 to Glu-107, Arg-151 to Asp-157, Gln-191 to Ser-197, Glu-215 to Leu-220, Ser-264 to Leu-270,	3, L0803: 3, L0749: 3, H0506: 3, H0560: 2, L0598: 2, L0662: 2, L0794: 2, L0804: 2, L0805: 2, H0520: 2, H0547: 2, H0436: 2, L0747: 2, L0755: 2, L0685: 2, H0583: 1, H0650: 1, H0177: 1, S0358: 1, H0580: 1, S0222: 1, H0642: 1, T0060: 1, H0421: 1, S0388: 1, H0266: 1, H0687: 1, T0023: 1, H0553: 1, H0379: 1, H0268: 1, S0144: 1, S0422: 1, H0529: 1, L0520: 1, L0761: 1, L0667: 1, L0772: 1, L0764: 1, L0652: 1, L0664: 1, L0665: 1, H0144: 1, H0519: 1, S0126: 1, H0672: 1, H0521: 1, L0746: 1, L0750: 1, L0779: 1, L0731: 1, L0759: 1, L0601: 1, L0603: 1, S0196: 1, H0543: 1 and H0423: 1.	9q31.2	223900, 253800, 253800	517-533, 476-492
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278	HWEAC64	784039	288	129 - 551	1693	Met-1 to Thr-7, Glu-13 to Val-18, Val-25 to Asn-34, Gly-56 to Val-63, Gln-80 to Glu-89,	Gly-351 to Gly-358, Lys-364 to Asn-371, Ser-374 to Gln-385, Glu-407 to Glu-413, Tyr-419 to Ser-424, Arg-435 to Gln-444.	2, L0471: 2, H0373: 2, H0068: 2, H0509: 2, H0519: 2, H0435: 2, S0152: 2, L0754: 2, L0603: 2, S0192: 2, H0170: 1, H0657: 1, S0212: 1, H0638: 1, S0354: 1, H0580: 1, S0045: 1, H0431: 1, H0333: 1, T0039: 1, H0013: 1, H0575: 1, S0049: 1, H0687: 1, S0003: 1, H0032: 1, S0364: 1, H0040: 1, H0551: 1, T0067: 1, H0268: 1, H0413: 1, T0069: 1, T0042: 1, S0150: 1, H0652: 1, H0529: 1, L0649: 1, L0803: 1, S0374: 1, H0691: 1, H0660: 1, H0672: 1, S0350: 1, H0478: 1, S0027: 1, S0028: 1, L0439: 1, L0740: 1, L0750: 1, L0755: 1, L0757: 1, L0759: 1, S0031: 1, L0591: 1, L0593: 1, S0026: 1, S0194: 1, S0196: 1 and S0424: 1.				32-57
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							Lys-102 to Leu-111, Gln-114 to Gln-119.	H0694: 29, H0703: 13, H0683: 10, H0717: 7, H0713: 6, H0542: 6, H0687: 4, H0656: 3, H0685: 2, H0716: 2, H0688: 2, H0695: 2, S0428: 2, H0689: 2, H0684: 2, H0521: 2, H0580: 1, H0601: 1, H0592: 1, H0708: 1, S0150: 1, H0699: 1, H0519: 1, H0709: 1, H0522: 1, H0555: 1, S0028: 1, H0707: 1 and H0543: 1.			
279	HSDFQ43	784159	289	14 - 433	1694	Met-1 to Arg-15.		AR104: 33, AR033: 30, AR060: 17, AR039: 15, AR096: 14, AR089: 14, AR053: 12, AR052: 10, AR055: 9, AR061: 5 S0422: 20, S0408: 10, L0776: 8, S0444: 7, H0038: 7, S0358: 6, L0740: 6, L0754: 6, L0758: 6, S0440: 5, L0771: 5, S0374: 5, L0756: 5, L0757: 5, L0774: 4, L0519: 4, H0547: 4, H0660: 4, L0748: 4, L0750: 4, L0752: 4, S0436: 4, S6024: 3, S0212: 3, S0442: 3, S0354: 3, S0360: 3, H0733: 3, T0115: 3, H0327: 3, S0003: 3, T0042: 3,			79-99, 118-134

H0494: 3, L0770: 3, L0775: 3, L0663: 3, H0144: 3, L0438: 3, S0406: 3, L0744: 3, L0439: 3, L0731: 3, H0661: 2, S0356: 2, H0728: 2, S0476: 2, H0619: 2, H0393: 2, S0222: 2, H0431: 2, H0587: 2, H0156: 2, H0098: 2, H0318: 2, S0474: 2, L0471: 2, H0014: 2, H0373: 2, S0022: 2, H0622: 2, H0313: 2, H0090: 2, H0551: 2, L0564: 2, S0438: 2, L0761: 2, L0662: 2, L0766: 2, L0659: 2, H0539: 2, H0521: 2, L0747: 2, S0031: 2, S0434: 2, L0592: 2, L0485: 2, L0581: 2, L0604: 2, S0026: 2, H0136: 2, H0542: 2, H0423: 2, H0624: 1, H0686: 1, H0713: 1, S0114: 1, H0662: 1, H0638: 1, S0420: 1, S0376: 1, H0729: 1, H0730: 1, H0722: 1, S0007: 1, S0046: 1, H0411: 1, S0278: 1, H0441: 1, H0461: 1, H0333: 1, H0574: 1, H0632: 1, L0622: 1, T0040: 1, T0060: 1, L0021: 1, H0147: 1,
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						H0036: 1, S0010: 1, S0346: 1, T0048: 1, H0421: 1, S0049: 1, T0110: 1, H0050: 1, S0050: 1, H0015: 1, H0051: 1, H0375: 1, S6028: 1, S0214: 1, H0328: 1, H0428: 1, H0039: 1, H0119: 1, H0031: 1, H0553: 1, H0032: 1, H0383: 1, H0316: 1, H0040: 1, T0067: 1, H0264: 1, H0413: 1, H0056: 1, H0560: 1, H0359: 1, S0144: 1, S0210: 1, L0520: 1, L0769: 1, L0638: 1, L0764: 1, L0773: 1, L0768: 1, L0387: 1, L0649: 1, L0389: 1, L0803: 1, L0805: 1, L0653: 1, L0655: 1, L0636: 1, L0517: 1, L0518: 1, L0809: 1, L0664: 1, L0665: 1, H0724: 1, H0520: 1, H0593: 1, S0126: 1, H0689: 1, H0711: 1, H0683: 1, S0330: 1, H0518: 1, S0152: 1, H0696: 1, S0044: 1, H0478: 1, H0626: 1, H0627: 1, S0390: 1, S0037: 1, L0786: 1, S0260: 1, H0445: 1, H0343: 1, H0595: 1, L0590: 1, H0667: 1,					
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280	HMHBN86	784650	290	45 - 464	1695	Ser-16 to Asp-23.	H0216: 1, H0422: 1, S0424: 1 and H0506: 1. AR053: 38, AR096: 29, AR052: 27, AR039: 25, AR089: 12, AR055: 11, AR060: 10, AR104: 9, AR033: 8, AR061: 5 L0662: 2, L0751: 2, L0591: 2, H0265: 1, S0358: 1, H0331: 1, H0486: 1, H0286: 1, H0644: 1, H0090: 1, H0100: 1, S0142: 1, L0638: 1, L0648: 1, L0666: 1, L0748: 1 and S0398: 1.				83-104, 106-122, 31-52, 58- 74
281	HLTAZ78	784764	291	123 - 1055	1696	Asp-25 to Glu-47, Thr-88 to Gln-99, Tyr-129 to Ser-135, Glu-143 to Ile-150, Pro-216 to Asp-221, Lys-287 to Ser-293.	AR104: 52, AR061: 49, AR060: 41, AR055: 34, AR033: 30, AR089: 29, AR052: 21, AR039: 20, AR053: 19, AR096: 15 L0731: 9, L0794: 8, L0749: 6, L0439: 5, L0662: 4, L0770: 3, L0803: 3, L0596: 3, L0717: 2, H0591: 2, L0761: 2, L0766: 2, L0659: 2, L0809: 2, L0663: 2, H0436: 2, L0748: 2, L0747: 2, L0779: 2, L0755: 2, L0758: 2, L0759: 2, L0591: 2, L0581: 2, H0423:				185-204, 101-117

282	HDLBM50	784930	292	1326 - 655	1697			2, H0170: 1, S0282: 1, H0661: 1, H0662: 1, H0638: 1, S0418: 1, S0356: 1, S0360: 1, S0046: 1, H0393: 1, H0486: 1, H0147: 1, H0318: 1, L0041: 1, H0562: 1, H0049: 1, H0266: 1, H0124: 1, H0598: 1, H0090: 1, L0475: 1, H0561: 1, S0382: 1, S0440: 1, H0509: 1, H0641: 1, S0002: 1, S0426: 1, L0769: 1, L0764: 1, L0804: 1, L0650: 1, L0805: 1, L0776: 1, L0789: 1, L0665: 1, H0520: 1, H0519: 1, H0666: 1, S0146: 1, S3014: 1, L0754: 1, L0757: 1, L0608: 1, S0026: 1, S0192: 1 and H0542: 1. AR061: 134, AR039: 81, AR096: 49, AR053: 35, AR104: 34, AR033: 32, AR060: 31, AR089: 30, AR052: 28, AR055: 18 L0766: 5, L0637: 2, L0748: 2, L0777: 2, H0170: 1, S0346: 1, H0560: 1, H0509: 1, S0002: 1, L0764: 1, L0804: 1, L0775: 1, L0789: 1, L0666: 1, S0380:					10-37, 185-214, 39-63, 117-134
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283	HHEDH33	785013	293	104 - 415	1698	Thr-10 to Asp-20, Ser-50 to Asn-55, Ala-71 to Asp-77.	1, H0521: 1, L0779: 1 and L0755: 1. AR039: 9, AR033: 8, AR104: 8, AR053: 6, AR096: 6, AR089: 6, AR052: 5, AR055: 5, AR060: 4, AR061: 2 L0521: 26, S0422: 22, H0170: 16, H0144: 16, L0748: 12, H0083: 11, H0624: 8, L0747: 7, H0171: 6, L0750: 6, T0042: 5, L0803: 5, L0749: 5, H0543: 5, H0581: 4, L0794: 4, L0529: 4, S0134: 3, H0486: 3, L0586: 3, H0013: 3, T0041: 3, L0517: 3, H0659: 3, L0777: 3, L0755: 3, L0589: 3, L0599: 3, H0542: 3, H0329: 2, H0645: 2, H0393: 2, H0427: 2, H0052: 2, H0530: 2, S0036: 2, H0591: 2, H0063: 2, L0598: 2, L0637: 2, L0662: 2, L0804: 2, L0655: 2, H0519: 2, L0740: 2, L0752: 2, L0759: 2, H0583: 1, S0282: 1, H0306: 1, H0402: 1, H0489: 1, H0580: 1, H0151: 1, H0370: 1, H0392: 1.	Xq13.3- Xq21.2	303100, 305450, 309605, 314580	77-94
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284	HAIDL86	785497	294	139 - 462	1699	Ile-42 to Gln-52.	AR053: 28, AR033: 20, AR052: 17, AR089: 12, AR096: 10, AR104: 10, AR060: 7, AR039: 5, AR055: 4, AR061: 4 H0171: 1, S0132: 1, H0528: 1 and L0592: 1.	AR0497: 1, S0280: 1, S0010: 1, S0346: 1, L0105: 1, H0421: 1, H0009: 1, H0569: 1, H0050: 1, H0620: 1, H0354: 1, H0252: 1, H0328: 1, H0428: 1, H0090: 1, H0100: 1, H0202: 1, H0494: 1, UNKWN: 1, H0529: 1, L0520: 1, L0770: 1, L0774: 1, L0555: 1, L0606: 1, L0657: 1, L0659: 1, L0809: 1, L0544: 1, H0520: 1, H0547: 1, H0436: 1, H0576: 1, L0743: 1, L0744: 1, L0754: 1, L0786: 1, L0731: 1, L0758: 1, S0031: 1, H0595: 1, S0106: 1 and S0452: 1.			1-26, 53- 75, 83-99
285	HTEPF14	785958	295	61 - 588	1700	Ser-12 to Gln-19.	AR055: 8, AR060: 5, AR052: 4, AR033: 4, AR061: 4, AR053: 4, AR096: 3, AR089: 3,			142-160	



286	HOEDD04	786659	296	363 - 803	1701	Val-78 to Asp-85.	AR104: 3, AR039: 2 L0758: 2, S0134: 1, H0618: 1, H0038: 1 and H0616: 1. AR052: 14, AR053: 8, AR055: 8, AR089: 8, AR096: 7, AR033: 7, AR060: 7, AR039: 5, AR061: 5, AR104: 4 S0126: 2, S0474: 1 and S0003: 1.			85-104
287	HODEK89	786830	297	150 - 449	1702	Leu-28 to Arg-38.	AR033: 57, AR089: 44, AR052: 41, AR053: 38, AR096: 35, AR104: 30, AR060: 27, AR039: 16, AR055: 16, AR061: 8 S0358: 8, L0766: 7, L0777: 7, L0731: 7, L0803: 4, L0659: 4, L0748: 4, L0751: 4, S0250: 3, L0775: 3, L0783: 3, L0809: 3, L0663: 3, H0305: 2, S0418: 2, S0360: 2, S0010: 2, L0763: 2, L0789: 2, H0520: 2, S3012: 2, L0750: 2, L0752: 2, L0755: 2, L0599: 2, L0362: 2, S0242: 2, H0717: 1, H0583: 1, H0656: 1, S0212: 1, S0420: 1,			47-73

288	HMUAZ89	786878	298	182 - 529	1703	Met-1 to Ile-11, Asn-16 to Gly-33.	S0376: 1, H0208: 1, S6026: 1, H0574: 1, H0632: 1, S0414: 1, H0559: 1, H0486: 1, H0013: 1, H0575: 1, S0474: 1, H0581: 1, H0570: 1, H0024: 1, H0014: 1, H0355: 1, H0328: 1, T0023: 1, H0553: 1, H0090: 1, H0591: 1, H0551: 1, H0488: 1, H0268: 1, H0623: 1, S0015: 1, H0509: 1, S0422: 1, H0529: 1, L0520: 1, L0761: 1, L0372: 1, L0626: 1, L0804: 1, L0650: 1, L0774: 1, L0653: 1, L0793: 1, L0666: 1, L0665: 1, H0547: 1, S0126: 1, H0684: 1, H0648: 1, S0152: 1, H0521: 1, S0406: 1, S0390: 1, L0745: 1, L0749: 1, L0756: 1, L0758: 1, L0588: 1, S0194: 1, H0543: 1, H0423: 1 and S0384: 1. AR089: 1, AR033: 1, AR061: 0, AR104: 0, AR096: 0, AR055: 0, AR039: 0, AR060: 0, AR052: 0 L0740: 6, S0212: 3, H0265: 2, H0656: 2, H0581:					85-101, 41-57, 66- 82
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289	HSBBB92	787263	299	221 - 1144	1704	Arg-64 to His-70.	2, H0038: 2, H0529: 2, L0649: 2, S0027: 2, L0754: 2, L0777: 2, L0731: 2, L0599: 2, S0192: 2, S0134: 1, H0341: 1, H0663: 1, S0418: 1, S0045: 1, H0619: 1, H0497: 1, H0486: 1, L0471: 1, H0615: 1, H0553: 1, H0040: 1, H0551: 1, L0662: 1, L0766: 1, L0803: 1, L0654: 1, L0658: 1, H0435: 1, H0660: 1, S0390: 1, S3014: 1, S0206: 1, L0750: 1, L0752: 1, S0194: 1 and H0506: 1.					282-308
290	HHBGJ75	787450	300	21 - 416	1705	Asp-26 to Arg-32.	AR104: 32, AR033: 24, AR096: 24, AR052: 23, AR053: 22, AR055: 20, AR039: 17, AR089: 15, AR060: 13, AR061: 9 L0758: 7, L0779: 5, H0038: 4, H0616: 2, L0151: 2, L0766: 2, H0125: 1, T0040: 1, H0050: 1, H0144: 1, H0698: 1, L0438: 1, H0521: 1, L0777: 1, L0752: 1, L0759: 1 and S0260: 1.	Xp11.23	300047, 300071,	63-89, 48- 64		

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291	HDPY22	787466	301	78 - 608	1706	Lys-26 to Glu-32, Leu-36 to Thr-43, Ala-64 to Trp-70.	L0518: 1, L0791: 1, H0682: 1, H0539: 1, S0044: 1, H0436: 1, S3012: 1, S0027: 1, L0740: 1, L0754: 1, L0747: 1, L0756: 1, L0780: 1, S0031: 1, L0599: 1, H0665: 1, S0192: 1, H0543: 1 and H0423: 1.				91-121, 77-93
292	HBBBC20	787587	302	570 - 1073	1707		AR053: 1, AR055: 1, AR089: 1, AR033: 1, AR061: 0, AR096: 0, AR039: 0, AR104: 0, AR052: 0, AR060: 0 H0543: 2, H0656: 1, H0341: 1, S0045: 1, H0039: 1, S0210: 1 and H0521: 1.				80-97, 132-148, 111-127
293	HMEW08	788955	303	105 - 1220	1708	Tyr-21 to Lys-28, Asp-51 to Asn-61, Asp-83 to Val-98, Phe-157 to Gln-165,	AR096: 8, AR033: 7, AR053: 6, AR060: 5, AR089: 5, AR052: 5, AR039: 3, AR055: 2, AR061: 2, AR104: 1 S0007: 2, T0040: 1, S0010: 1, H0374: 1, L0157: 1, H0488: 1, H0519: 1 and H0539: 1.				248-264, 114-130

						Asn-198 to Asn-205, Arg-241 to Gly-247, Thr-266 to Leu-272, Gln-288 to Lys-299, Pro-348 to Gly-354.	AR104: 3, AR039: 3 L0439: 4, H0553: 3, S0414: 2, H0031: 2, H0625: 2, H0529: 2, H0144: 2, S0126: 2, L0742: 2, L0744: 2, L0779: 2, H0717: 1, H0656: 1, S0222: 1, H0333: 1, H0013: 1, S0010: 1, T0110: 1, H0050: 1, T0010: 1, S6028: 1, H0266: 1, S0318: 1, S0316: 1, S0003: 1, H0428: 1, H0551: 1, H0100: 1, T0042: 1, S0344: 1, H0538: 1, L0766: 1, L0805: 1, L0665: 1, H0519: 1, H0690: 1, H0670: 1, S0380: 1, L0743: 1, L0756: 1, L0731: 1, S0026: 1, S0192: 1, S0276: 1, H0423: 1 and L0698: 1.				
294	HTPDL90	789115	304	150 - 1235	1709		AR039: 69, AR096: 52, AR089: 45, AR052: 34, AR053: 32, AR060: 21, AR055: 15, AR104: 13, AR033: 12, AR061: 8				190-207, 14-30, 288-304, 144-160
295	HTACZ08	789276	305	1095 - 82	1710	Pro-15 to Gly-23, Glu-59 to Ser-64, Leu-100 to Gln-106.	AR055: 11, AR061: 6, AR060: 6, AR033: 5, AR089: 4, AR052: 4.				161-177, 276-292

						Arg-134 to Glu-139, Met-219 to Trp-225, Ile-255 to Asp-260.	AR096: 3, AR104: 3, AR053: 3, AR039: 2 L0766: 4, L0749: 4, L0804: 3, L0751: 3, H0486: 2, H0069: 2, H0012: 2, H0620: 2, H0634: 2, H0616: 2, L0771: 2, H0521: 2, L0747: 2, H0583: 1, S0212: 1, H0255: 1, S0356: 1, S0376: 1, H0619: 1, H0609: 1, H0613: 1, H0586: 1, H0618: 1, H0373: 1, H0239: 1, H0213: 1, H0038: 1, H0040: 1, H0087: 1, S0426: 1, L0763: 1, L0769: 1, L0761: 1, L0646: 1, L0803: 1, L0774: 1, L0775: 1, L0651: 1, L0526: 1, L0790: 1, L0666: 1, L0665: 1, S0126: 1, H0539: 1, S0406: 1, L0750: 1, L0756: 1, L0779: 1, L0757: 1, L0758: 1 and S0194: 1.				52-72, 31- 50, 75-95, 9-28
296	HAGEC91	789377	306	48 - 377	1711		AR096: 18, AR039: 18, AR089: 16, AR060: 12, AR104: 11, AR053: 10, AR052: 10, AR033: 9, AR055: 9, AR061: 5 S0114: 2, S0360: 1, H0619: 1, S0222: 1, H0392:				

297	HTTCB23	789555	307	1698 - 10	1712	Trp-105 to Thr-116, Trp-155 to Gln-162, Gln-172 to Asp-177, Gln-226 to Glu-232, Gln-254 to Glu-260, Glu-296 to Tyr-305, Thr-338 to Val-344, Leu-377 to Ile-384, Asp-413 to Lys-419, Cys-436 to Ile-443, Thr-490 to Gln-496, Glu-508 to Ser-514, Lys-525 to Glu-537.	1, S0010: 1, H0538: 1, L0527: 1, L0657: 1, L0659: 1, H0435: 1, H0658: 1, H0543: 1 and L0600: 1. AR039: 45, AR096: 22, AR104: 20, AR033: 19, AR053: 18, AR089: 16, AR055: 15, AR060: 14, AR052: 13, AR061: 8 L0666: 5, L0748: 5, L0747: 4, L0768: 3, H0521: 3, L0750: 3, L0755: 3, L0608: 3, H0486: 2, H0575: 2, H0052: 2, H0457: 2, H0024: 2, H0090: 2, L0631: 2, L0766: 2, L0665: 2, L0438: 2, H0547: 2, H0435: 2, H0658: 2, H0696: 2, H0436: 2, H0170: 1, H0650: 1, H0656: 1, H0638: 1, S0420: 1, H0607: 1, H0013: 1, H0618: 1, H0046: 1, S0250: 1, S0003: 1, H0688: 1, T0023: 1, S0364: 1, H0591: 1, H0040: 1, H0264: 1, H0268: 1, H0494: 1, H0509: 1, H0538: 1, H0529: 1, L0763: 1, L0644: 1, L0662: 1, L0775: 1, L0659: 1, L0783: 1, L0809: 1,				451-468, 2-18, 474- 490, 306- 322
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									L0789: 1, L0664: 1, H0519: 1, H0648: 1, S0378: 1, S0380: 1, H0522: 1, L0779: 1, L0759: 1, H0543: 1 and H0423: 1.				
298	HYAAL21	789607	308	99 - 1217	1713				AR039: 33, AR089: 18, AR053: 17, AR096: 17, AR033: 14, AR052: 14, AR104: 13, AR060: 11, AR055: 7, AR061: 5, H0583: 1 and S0216: 1.				82-98
299	HTLHY91	789660	309	121 - 576	1714				AR055: 3, AR061: 3, AR033: 3, AR096: 3, AR060: 2, AR089: 2, AR052: 1, AR053: 1, AR039: 1, AR104: 0, H0618: 3, H0253: 3, L0803: 2, L0748: 2, L0779: 2, L0758: 2, H0550: 1, T0060: 1, H0544: 1, H0041: 1, S0368: 1, H0038: 1, H0509: 1, L0363: 1, L0768: 1, L0657: 1, L0809: 1, L0663: 1, H0684: 1 and S0152: 1.				116-134
300	HUTAD91	789688	310	4 - 513	1715				Gly-42 to Gly-47, Asn-64 to Asn-74, Ser-102 to Val-108, Pro-114 to Leu-121.				84-100

								AR089: 8, AR061: 3 L0731: 6, L0770: 3, H0295: 2, L0375: 2, L0756: 2, H0706: 1, H0212: 1, S0440: 1, L0369: 1, L0763: 1, L0769: 1, L0639: 1, L0646: 1, L0764: 1, L0774: 1, L0805: 1, L0542: 1, L0783: 1, L0666: 1, L0664: 1, L0565: 1, H0648: 1, S0027: 1, L0740: 1, L0745: 1, L0749: 1, L0750: 1, L0752: 1, L0599: 1 and H0423: 1.				114-130
301	HKGDE58	790091	311	28 - 531	1716	Pro-5 to Lys-16, Ser-21 to Leu-26, Trp-43 to Cys-53, Glu-74 to Pro-81, Met-86 to Val-91.	AR096: 3, AR089: 2, AR060: 2, AR104: 2, AR053: 2, AR055: 2, AR033: 1, AR052: 1, AR061: 1, AR039: 0 H0538: 1, L0803: 1 and L0731: 1.					
302	HBIAW78	790219	312	50 - 1051	1717	Asp-41 to Asn-47, Ser-57 to Lys-63, Glu-91 to Gly-98, Asp-108 to Cys-117, Lys-177 to Glu-187, Phe-204 to Asp-221.	AR033: 7, AR096: 5, AR052: 4, AR060: 4, AR061: 3, AR089: 3, AR055: 3, AR053: 2, AR104: 2, AR039: 1 H0521: 4, H0656: 3, H0542: 2, L0615: 1, S0045: 1, H0643: 1, H0013: 1,				235-252, 133-149	

303	HTOIC11	790634	313	89 - 853	1718				H0575: 1, H0581: 1, H0421: 1, S0049: 1, H0052: 1, T0103: 1, H0050: 1, H0373: 1, H0051: 1, H0083: 1, H0375: 1, H0266: 1, H0039: 1, H0031: 1, H0644: 1, H0090: 1, H0591: 1, H0038: 1, H0412: 1, H0623: 1, H0494: 1, S0150: 1, S0344: 1, S0210: 1, S0422: 1, H0519: 1, H0522: 1, S012: 1, L0588: 1 and L0591: 1.				50-73, 167-183
304	HNTRM40	790790	314	141 - 446	1719	Phe-6 to Leu-14, Lys-30 to Asp-37.			AR033: 5, AR089: 4, AR061: 3, AR060: 2, AR052: 2, AR055: 2, AR053: 2, AR039: 1, AR096: 0, AR104: 0 L0794: 4, L0766: 2, L0777: 2, H0549: 1, H0093: 1, H0135: 1, H0087: 1, H0264: 1, L0769: 1, L0804: 1, L0774: 1, L0783: 1, L0809: 1, L0787: 1, L0789: 1 and L0666: 1.	180069, 180069, 180069, 201450, 248610,	Ip31		74-90, 12- 28

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				Glu-103 to Arg-109, Ser-146 to His-154, Pro-190 to Ile-195, Val-212 to Cys-218.	AR055: 2, AR104: 2, AR060: 2, AR089: 1, AR039: 1, AR061: 1 L0438: 6, L0439: 6, L0755: 4, L0776: 3, L0754: 3, H0542: 3, H0556: 2, L0157: 2, H0553: 2, L0770: 2, L0769: 2, L0805: 2, L0748: 2, L0747: 2, L0749: 2, L0750: 2, L0779: 2, L0731: 2, S0242: 2, H0265: 1, L0426: 1, H0341: 1, H0484: 1, S0418: 1, S0046: 1, H0393: 1, S0278: 1, S0222: 1, H0013: 1, H0635: 1, H0427: 1, H0156: 1, H0575: 1, L2250: 1, H0046: 1, H0009: 1, H0050: 1, L0471: 1, H0266: 1, H0328: 1, H0428: 1, H0644: 1, H0212: 1, H0591: 1, H0616: 1, H0412: 1, T0041: 1, S0438: 1, H0647: 1, S0426: 1, L0771: 1, L0636: 1, L0789: 1, L4501: 1, L0666: 1, L0665: 1, H0520: 1, H0519: 1, H0593: 1, H0435: 1, H0658: 1, S0152: 1, H0214: 1, H0478: 1, S0027: 1, S0028: 1, L0756: 1,			
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309	HE8OX93	791839	319	171 - 677	1724	Pro-9 to Pro-24, Arg-55 to Gln-71, Tyr-90 to Val-95, Pro-97 to Arg-102, Val-105 to Asn-118.	L0752: 1, H0343: 1 and S0436: 1. AR055: 14, AR061: 10, AR060: 10, AR039: 9, AR052: 7, AR096: 7, AR089: 6, AR033: 6, AR104: 5, AR053: 5 H0624: 1, H0171: 1 and H0013: 1.			137-154
310	HOFMV90	792393	320	24 - 1412	1725	Asp-3 to Ile-14, Asp-30 to Trp-38, Lys-43 to Thr-52, Pro-54 to Glu-61, Arg-116 to Gly-121, Asn-146 to Arg-157, Pro-259 to Phe-264, Asp-271 to Glu-276, Ser-285 to Asn-293, Ala-358 to Ala-366, Leu-370 to Gln-375, Glu-407 to Thr-412, Ile-421 to Leu-429.	AR096: 3, AR052: 3, AR053: 3, AR033: 3, AR039: 2, AR089: 2, AR104: 2, AR060: 1, AR061: 1, AR055: 1 L0439: 11, L0666: 5, L0740: 5, H0580: 4, H0591: 4, H0519: 4, S0476: 3, L0471: 3, H0553: 3, L0770: 3, L0803: 3, L0752: 3, L0592: 3, S0418: 2, H0013: 2, H0046: 2, H0373: 2, S0003: 2, H0090: 2, H0551: 2, H0412: 2, S0386: 2, L0775: 2, L0655: 2, L0663: 2, L0665: 2, H0547: 2, H0660: 2, H0521: 2, L0748: 2, L0751: 2, L0754: 2, L0747: 2, L0731: 2, L0757: 2, L0759: 2, L0608: 2,			308-325, 64-80, 211-227, 158-174

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311	HTEFV95	792575	321	61 - 573	1726	Glu-94 to Pro-99.	L0601: 1, L0366: 1, H0542: 1, H0423: 1 and H0293: 1. AR055: 13, AR052: 9, AR089: 9, AR053: 8, AR033: 8, AR060: 7, AR096: 7, AR061: 6, AR104: 3, AR039: 2 H0038: 2, S0010: 1, H0252: 1, T0023: 1 and H0616: 1.				107-123
312	HETJA44	792627	322	813 - 148	1727	Glu-16 to Thr-24, Ser-32 to Val-42.	AR055: 8, AR052: 6, AR060: 5, AR096: 5, AR053: 4, AR033: 4, AR089: 4, AR061: 4, AR039: 3, AR104: 2 H0046: 7, S0314: 2, L0751: 2, L0754: 2, H0171: 1, S0222: 1, H0574: 1, H0318: 1, H0194: 1, H0477: 1, S0422: 1, L0373: 1, L0768: 1, L0776: 1, L0655: 1, L0666: 1, L0747: 1, L0780: 1, L0752: 1, S0026: 1 and S0424: 1.				182-198
313	HE2DR93	792628	323	72 - 374	1728	Val-13 to Asn-21, His-24 to Leu-29, Pro-32 to Pro-37, Arg-43 to Leu-48, Cys-83 to Met-94.	AR055: 6, AR053: 3, AR060: 3, AR096: 3, AR052: 3, AR061: 3, AR089: 3, AR033: 2, AR104: 2, AR039: 1				56-82

314	HABT15	792938	324	41 - 610	1729	Glu-7 to Arg-22.	H0170: 1, H0620: 1, L0774: 1, L0744: 1 and L0748: 1. AR053: 11, AR039: 10, AR052: 10, AR055: 10, AR033: 10, AR089: 9, AR096: 7, AR060: 5, AR104: 5, AR061: 4 H0052: 4, S0049: 3, H0135: 3, L0803: 3, L0804: 3, L0758: 3, H0171: 2, L0764: 2, L0771: 2, L0775: 2, L0439: 2, L0750: 2, L0779: 2, L0731: 2, L0759: 2, L0603: 2, H0624: 1, H0656: 1, S0442: 1, H0619: 1, H0550: 1, H0370: 1, H0592: 1, H0333: 1, L0623: 1, H0013: 1, H0156: 1, H0590: 1, H0318: 1, S0474: 1, H0546: 1, L0163: 1, H0267: 1, H0179: 1, L0456: 1, H0090: 1, H0077: 1, H0264: 1, S0038: 1, H0494: 1, H0560: 1, H0561: 1, L0763: 1, L0770: 1, L0769: 1, L0772: 1, L0800: 1, L0645: 1, L0662: 1, L0768: 1, L0766: 1, L0774: 1, L0375: 1, L0809: 1, L0789:				126-143
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315	HDBAD63	793148	325	109 - 606	1730	Met-1 to Arg-15, Asp-58 to Ala-63, Pro-67 to Arg-73.	1, L0666: 1, L0663: 1, H0144: 1, L0438: 1, H0547: 1, H0593: 1, S0126: 1, H0670: 1, S0328: 1, S0330: 1, H0539: 1, H0521: 1, H0696: 1, H0627: 1, L0748: 1, L0749: 1, L0756: 1, L0786: 1, L0780: 1, L0752: 1, H0445: 1, L0605: 1 and L0592: 1. AR096: 21, AR061: 16, AR089: 11, AR052: 7, AR039: 5, AR055: 4, AR104: 4, AR053: 4, AR060: 4, AR033: 4 H0265: 3, H0556: 3, H0657: 3, H0059: 3, H0255: 2, H0661: 2, L0750: 2, H0662: 1, H0638: 1, H0393: 1, H0101: 1, T0082: 1, T0110: 1, H0578: 1, H0083: 1, H0617: 1, H0606: 1, T0042: 1, S0142: 1, H0144: 1, H0547: 1, H0576: 1, S3014: 1, L0747: 1, L0777: 1, L0755: 1 and H0506: 1.				78-94, 124-140, 37-53, 97- 113
316	HE8QH85	793204	326	170 - 532	1731	Glu-34 to Asp-39.	AR089: 20, AR033: 19, AR104: 15, AR060: 15, AR061: 12, AR039: 11,	Xp11.4- p11.1	300047, 300062, 300600,	98-115, 62-78, 40- 56	

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	H0261: 1, H0549: 1, H0550: 1, S0222: 1, S0220: 1, H0441: 1, H0403: 1, H0438: 1, H0632: 1, T0039: 1, H0244: 1, H0250: 1, H0069: 1, H0427: 1, H0575: 1, H0374: 1, H0196: 1, H0194: 1, H0085: 1, H0597: 1, H0327: 1, H0150: 1, H0172: 1, H0123: 1, H0023: 1, H0200: 1, H0051: 1, H0275: 1, H0356: 1, H0354: 1, H0271: 1, H0286: 1, H0039: 1, T0006: 1, H0033: 1, H0604: 1, H0644: 1, L0142: 1, H0628: 1, H0617: 1, H0383: 1, H0674: 1, H0163: 1, H0634: 1, H0272: 1, H0268: 1, H0412: 1, H0413: 1, S0038: 1, T0041: 1, T0042: 1, H0561: 1, S0150: 1, S0144: 1, S0142: 1, L0638: 1, L0637: 1, L0374: 1, L0773: 1, L0794: 1, L0649: 1, L0650: 1, L0375: 1, L0378: 1, L0654: 1, L0661: 1, L0657: 1, L0634: 1, L0659: 1, L0636: 1, L0647: 1, L0367: 1, L0663: 1, H0701: 1, L0438: 1,	
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317	HAICU52	793373	327	162 - 662	1732	Arg-14 to Ser-23, Arg-50 to Trp-60.	H0689: 1, H0683: 1, H0670: 1, H0660: 1, H0672: 1, S0328: 1, S0330: 1, H0521: 1, S0406: 1, H0555: 1, H0436: 1, L0611: 1, S0390: 1, L0779: 1, L0780: 1, L0757: 1, H0707: 1, L0589: 1, S0011: 1, H0668: 1, H0653: 1, H0667: 1, H0542: 1, L0469: 1, H0422: 1 and H0506: 1.					132-148
318	HE6BJ49	793433	328	59 - 469	1733	Met-1 to Ala-6, Arg-16 to Thr-28, Leu-34 to Thr-49, Ile-97 to Ile-104, Glu-129 to Arg-137.	AR052: 187, AR053: 127, AR096: 125, AR055: 118, AR089: 96, AR104: 82, AR061: 73, AR060: 73, AR039: 71, AR033: 64 S0418: 2, S0007: 2, S0132: 2, H0559: 2, H0520: 2, H0547: 2, H0650: 1, H0483: 1, S0046: 1, S0476: 1, H0012: 1, H0604: 1, S0366: 1, H0551: 1, S0150: 1, S0378: 1, S0152: 1, S3014: 1, L0439: 1 and S0194: 1. AR039: 70, AR053: 41, AR104: 39, AR052: 38, AR096: 36, AR033: 36, AR055: 34, AR060: 29, AR089: 24, AR061: 16					65-81

319	HE8TJ39	793553	329	259 - 615	1734	Arg-86 to Val-91.	L0748: 7, H0039: 5, H0619: 4, L0439: 4, S0222: 3, H0494: 3, L0438: 3, H0012: 2, H0032: 2, H0547: 2, L0740: 2, L0759: 2, H0556: 1, S0134: 1, H0580: 1, S0278: 1, H0415: 1, H0586: 1, T0109: 1, H0013: 1, H0575: 1, S0010: 1, H0581: 1, H0046: 1, L2244: 1, L0471: 1, T0010: 1, H0354: 1, H0687: 1, H0031: 1, H0553: 1, H0644: 1, H0400: 1, H0591: 1, H0038: 1, H0040: 1, H0551: 1, H0623: 1, H0100: 1, S0440: 1, S0344: 1, L0387: 1, L0766: 1, L0790: 1, H0520: 1, H0519: 1, H0660: 1, S0152: 1, S0044: 1, H0436: 1, L0751: 1, L0731: 1, S0031: 1, L0592: 1, S0242: 1 and H0423: 1. AR033: 5, AR053: 3, AR052: 3, AR096: 3, AR089: 3, AR061: 3, AR060: 2, AR104: 2, AR039: 2, AR055: 1 L0777: 3, H0013: 2 and L0749: 1.					65-85, 5- 21
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320	HFIBG92	793632	330	104 - 481	1735	Asp-29 to Thr-34, Val-55 to Gly-65, Glu-114 to Ala-119.	AR052: 3, AR053: 3, AR096: 3, AR055: 2, AR033: 1, AR060: 1, AR089: 1, AR061: 1, AR104: 1, AR039: 0 H0556: 5, H0265: 2, S0418: 2, H0575: 2, L0659: 2, S0328: 2, L0731: 2, L0759: 2, S0192: 2, H0295: 1, T0049: 1, S0046: 1, S0476: 1, S0278: 1, H0486: 1, H0250: 1, H0156: 1, H0544: 1, L0041: 1, H0081: 1, H0266: 1, H0264: 1, T0041: 1, T0042: 1, H0561: 1, L0639: 1, L0637: 1, L0662: 1, L0767: 1, L0768: 1, L0509: 1, L0382: 1, L2269: 1, L0663: 1, S0310: 1, H0672: 1, S0380: 1, H0521: 1, S0037: 1, S0027: 1, L0747: 1, L0777: 1, S0260: 1, S0434: 1, S0436: 1, L0592: 1, H0543: 1 and H0008: 1.			96-112
321	HDPBJ94	794297	331	39 - 425	1736	Gly-10 to Pro-19, Pro-25 to Arg-33, Ser-43 to Gly-52.	AR055: 3, AR052: 3, AR089: 2, AR033: 2, AR053: 2, AR060: 2, AR096: 1, AR061: 1, AR104: 1, AR039: 0			97-117

									S0116: 1, L0768: 1, L0656: 1, H0521: 1, L0070: 1, L0439: 1 and L0779: 1.				
322	HPIAX11	794354	332	342 - 1259	1737				AR055: 11, AR061: 9, AR033: 9, AR089: 8, AR052: 8, AR104: 7, AR096: 7, AR053: 6, AR060: 5, AR039: 3 H0616: 1, S0150: 1 and L0581: 1.				254-282, 224-246, 119-140, 160-179, 200-217
323	HBGMW9 5	795325	333	1 - 300	1738	Arg-8 to Gly-17.			AR053: 1, AR052: 1, AR055: 1, AR033: 1, AR089: 1, AR061: 1, AR104: 1, AR060: 1, AR096: 0, AR039: 0 H0255: 1, S0045: 1, S0278: 1, H0181: 1, H0617: 1, S0428: 1, S0053: 1, S0028: 1 and L0597: 1.				40-61, 65- 81
324	HUSII83	796477	334	883 - 578	1739	Phe-2 to Gln-7.			AR039: 18, AR033: 11, AR053: 10, AR089: 9, AR052: 8, AR096: 8, AR055: 7, AR060: 6, AR104: 5, AR061: 5 L0666: 8, L0766: 4, H0038: 3, L0664: 3, L0665: 3, H0265: 2, S0360: 2, H0046: 2, L0663: 2, H0520: 2, L0748: 2, L0751: 2,				75-99

325	HBGDP38	796622	335	55 - 495	1740	L0749: 2, L0779: 2, L0777: 2, L0758: 2, H0341: 1, H0638: 1, S0356: 1, S0358: 1, S0045: 1, H0261: 1, S0222: 1, H0632: 1, H0427: 1, H0597: 1, T0010: 1, H0266: 1, S0003: 1, H0412: 1, H0561: 1, S0002: 1, L0640: 1, L0638: 1, L0646: 1, L0771: 1, L0768: 1, L0375: 1, L0651: 1, L0776: 1, L0659: 1, L0438: 1, H0547: 1, H0658: 1, L0611: 1, S3014: 1, L0439: 1, L0754: 1, L0747: 1, L0750: 1, L0755: 1 and S0026: 1, AR033: 2, AR096: 2, AR104: 1, AR060: 1, AR089: 1, AR061: 0, AR052: 0, AR055: 0, AR053: 0, AR039: 0 S0028: 3, S0001: 2, S0356: 2, H0617: 2, L0809: 2, L0439: 2, L0731: 2, L0361: 2, S0040: 1, S0045: 1, H0619: 1, S0278: 1, H0250: 1, H0156: 1, H0231: 1, H0181: 1, L0456: 1, L0375: 1, L0783: 1, L0663: 1, H0144: 1, L0438: 1, S0390: 1					112-128, 72-88
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326	HTXEC55	798103	336	195 - 785	1741	Trp-7 to Gly-21, Arg-24 to Glu-31, Ala-69 to Trp-80, Arg-129 to Pro-135, Ser-142 to Phe-147, Phe-151 to Gly-159.	1, L0747: 1, L0759: 1 and S0031: 1. AR053: 19, AR096: 16, AR052: 16, AR055: 9, AR089: 8, AR061: 6, AR060: 6, AR033: 6, AR039: 3, AR104: 2 L0777: 5, H0265: 2, H0556: 2, S0358: 2, L0351: 2, L0769: 2, L0766: 2, L0666: 2, L0748: 2, L0439: 2, H0657: 1, H0255: 1, H0637: 1, H0549: 1, S0222: 1, H0586: 1, H0427: 1, H0597: 1, H0545: 1, H0012: 1, S0214: 1, H0424: 1, H0213: 1, H0628: 1, H0090: 1, H0412: 1, L0637: 1, L0800: 1, L0644: 1, L0662: 1, L0381: 1, L0776: 1, L0655: 1, L0659: 1, L0809: 1, L0790: 1, L0792: 1, L0665: 1, H0547: 1, S0126: 1, H0435: 1, H0670: 1, S0432: 1, L0749: 1, L0758: 1, H0543: 1, H0423: 1 and H0422: 1.				46-64, 111-127, 85-101
327	HFXGI63	799513	337	1879 - 2349	1742	Ala-3 to Thr-27, Arg-29 to Ser-35,	AR055: 9, AR060: 5, AR061: 4, AR033: 3,				62-78, 87- 103

328	HAMGW1 9	799889	338	119 - 475	1743	Gly-43 to Trp-62, Gln-107 to Gln-114, Arg-132 to Lys-140.	AR052: 3, AR089: 3, AR096: 2, AR053: 2, AR104: 2, AR039: 1 S0222: 2, H0100: 2, L0438: 2, S0114: 1, S0001: 1, H0208: 1, H0123: 1, H0012: 1, H0620: 1, S6028: 1, H0328: 1, H0413: 1, S0038: 1, T0042: 1, L0439: 1 and L0593: 1.					89-105
329	HDPTA89	800344	339	173 - 949	1744	Thr-4 to Pro-28, Pro-51 to His-62, Pro-83 to Thr-91, Phe-100 to Trp-105, Ile-167 to Gln-182.	AR096: 1, AR052: 1, AR104: 1, AR060: 1, AR089: 1, AR033: 0, AR055: 0, AR061: 0, AR053: 0, AR039: 0 L0777: 11, L0751: 10, L0769: 7, L0758: 6, L0766: 5, H0617: 4, L0771: 4, L0776: 4, L0439: 4, L0757: 4, L0759: 4, H0253: 3, H0494: 3, L0761: 3, H0521: 3, L0754: 3, H0318: 2, H0150: 2, L0794: 2, L0805:					225-248, 106-122

330	HSLDO85	801935	340	100 - 618	1745	Pro-3 to Lys-12, Glu-17 to Leu-23, Ala-148 to Leu-173.	2, L0665: 2, L0743: 2, L0750: 2, L0752: 2, H0265: 1, S0342: 1, H0713: 1, S0218: 1, L0785: 1, H0484: 1, L0481: 1, S0420: 1, S0444: 1, H0637: 1, S0045: 1, S0046: 1, H0549: 1, H0486: 1, H0427: 1, H0599: 1, H0618: 1, H0194: 1, T0115: 1, H0597: 1, H0231: 1, H0083: 1, H0266: 1, H0622: 1, H0424: 1, H0213: 1, H0553: 1, H0181: 1, H0087: 1, H0551: 1, H0623: 1, H0100: 1, H0560: 1, S0150: 1, H0695: 1, L0796: 1, L0643: 1, L0662: 1, L0803: 1, L0775: 1, L0809: 1, L0789: 1, L0663: 1, L0664: 1, H0691: 1, S0126: 1, H0682: 1, S0330: 1, S0152: 1, L0749: 1, L0756: 1, L0779: 1, L0780: 1, L0753: 1, H0445: 1 and H0667: 1.	1p36.3- p36.2	120550, 120570, 120575, 130500, 133200,	25-46, 101-122, 46-62, 126-142
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331	HDQDF38	805499	341	791 - 1792	1746	Pro-3 to Lys-13, Thr-26 to Thr-41.	1 and H0422: 1, AR096: 3, AR089: 2, AR052: 1, AR061: 1, AR033: 1, AR053: 1, AR060: 1, AR055: 0, AR039: 0, AR104: 0 L0766: 7, L0662: 4, L0789: 4, L0748: 4, L0749: 4, L0769: 3, L0776: 3, L0438: 3, H0521: 3, H0556: 2, S0360: 2, L0717: 2, L0794: 2, L0666: 2, L0663: 2, H0547: 2, S0028: 2, L0754: 2, H0422: 2, T0049: 1, H0657: 1, H0411: 1, H0586: 1, H0013: 1, H0098: 1, H0575: 1, L0471: 1, L0163: 1, L0455: 1, S0366: 1, S0036: 1, H0038: 1, H0551: 1, L0763: 1, L0800: 1, L0387: 1, L0803: 1, L0805: 1, L0518: 1, L0809: 1, H0660: 1, H0696: 1, H0555: 1, L0612: 1, S0032: 1, L0742: 1, L0740: 1, L0747: 1, L0750: 1, L0756: 1, L0777: 1, L0757: 1, H0423: 1 and L0600: 1.				311-330
332	HULAW69	805628	342	271 -	1747	Phe-44 to Asn-55,	AR033: 14, AR096: 13, AR033: 14, AR096: 13,			65-84, 20-	



			678	Arg-86 to Gly-92.	AR104: 11, AR039: 10, AR061: 9, AR052: 9, AR055: 9, AR060: 8, AR089: 8, AR053: 5 S0278: 15, S0126: 14, L0742: 13, L0754: 11, L0758: 10, L0751: 8, L0747: 8, L0748: 7, H0305: 6, S0360: 6, H0530: 6, H0545: 6, L0776: 6, L0744: 6, H0484: 5, H0638: 5, S0007: 5, S0045: 5, H0617: 5, S0144: 5, L0766: 5, L0805: 5, S0027: 5, L0750: 5, L0757: 5, H0445: 5, H0542: 5, H0657: 4, S0046: 4, H0370: 4, S0051: 4, H0424: 4, H0087: 4, H0551: 4, S0142: 4, S0344: 4, L0763: 4, L0770: 4, L0764: 4, L0662: 4, L0768: 4, L0803: 4, L0775: 4, H0539: 4, H0521: 4, L0743: 4, L0752: 4, L0603: 4, H0543: 4, S0040: 3, S0442: 3, S0358: 3, S0408: 3, H0549: 3, H0486: 3, H0544: 3, H0150: 3, H0023: 3, H0510: 3, H0646: 3, L0771: 3, L0773: 3, L0794: 3, L0774:	38
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							3, L0655; 3, L0659; 3, S0404; 3, S3014; 3, S0028: 3, H0422; 3, H0556; 2, S6024; 2, H0295; 2, S0116: 2, H0341; 2, S0282; 2, S0029; 2, H0661; 2, H0580: 2, H0441; 2, H0069; 2, L0021; 2, H0599; 2, T0048: 2, S0049; 2, H0327; 2, H0050; 2, H0057; 2, H0083: 2, H0033; 2, H0213; 2, H0181; 2, H0606; 2, H0634: 2, S0426; 2, L0769; 2, L0639; 2, L0761; 2, L0373: 2, L0646; 2, L0378; 2, L0806; 2, L0517; 2, S0052: 2, H0670; 2, H0710; 2, H0522; 2, H0696; 2, L0745: 2, L0756; 2, L0753; 2, L0755; 2, L0731; 2, S0434: 2, S0436; 2, L0588; 2, H0653; 2, H0667; 2, S0194: 2, S0196; 2, H0423; 2, H0352; 2, H0170; 1, H0171: 1, H0265; 1, H0685; 1, H0713; 1, H0716; 1, H0294: 1, S0114; 1, L0002; 1, H0656; 1, H0381; 1, H0483: 1, H0402; 1, H0589; 1, H0125; 1, S0356; 1, H0675:
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				1, H0728: 1, S0132: 1, S6022: 1, S0222: 1, H0392: 1, H0607: 1, H0592: 1, H0586: 1, H0333: 1, H0492: 1, T0114: 1, S0280: 1, T0082: 1, H0618: 1, H0253: 1, S0010: 1, H0581: 1, H0251: 1, H0309: 1, H0234: 1, H0546: 1, H0178: 1, H0567: 1, H0081: 1, H0012: 1, H0024: 1, H0594: 1, H0266: 1, H0179: 1, H0416: 1, H0188: 1, H0290: 1, H0292: 1, S0003: 1, H0252: 1, H0328: 1, S0368: 1, H0604: 1, H0553: 1, H0673: 1, H0708: 1, H0316: 1, H0598: 1, H0040: 1, H0063: 1, H0264: 1, H0413: 1, S0038: 1, T0041: 1, H0560: 1, H0625: 1, S0464: 1, S0438: 1, S0440: 1, H0130: 1, H0641: 1, H0529: 1, L0369: 1, L0371: 1, L0772: 1, L0800: 1, L0642: 1, L0644: 1, L0645: 1, L0521: 1, L0364: 1, L5564: 1, L5568: 1, L0523: 1, L0653: 1, L0807: 1, L0527: 1, L0636: 1, L0782: 1, L0809:							
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333	HE9QK23	805751	343	321 - 737	1748	Met-1 to Phe-10, Gly-13 to Leu-56, Gln-132 to Thr-139.	1, L0529: 1, L0647: 1, L0664: 1, S0428: 1, S0216: 1, H0144: 1, H0520: 1, H0547: 1, H0689: 1, S0378: 1, S0152: 1, S0406: 1, H0187: 1, H0576: 1, S3012: 1, S0037: 1, S0206: 1, L0740: 1, L0749: 1, L0779: 1, L0759: 1, L0605: 1, L0608: 1, S0106: 1, H0216: 1, S0192: 1 and S0276: 1. AR055: 8, AR061: 7, AR033: 5, AR089: 4, AR053: 4, AR096: 4, AR052: 4, AR060: 4, AR039: 0, AR104: 0 H0616: 3, L0662: 3, L0754: 3, T0039: 2, L0758: 2, S0360: 1, S0045: 1, S6026: 1, S0222: 1, H0427: 1, H0038: 1, L0769: 1, L0805: 1, L0776: 1, L0659: 1, L0789: 1, H0144: 1, L0779: 1, L0777: 1, L0757: 1 and S0192: 1.					72-96
334	HNTTB36	806145	344	93 - 410	1749		AR033: 8, AR089: 3, AR096: 2, AR104: 2, AR053: 1, AR060: 1, AR061: 1, AR052: 0,	2				48-65

								AR039: 0, AR055: 0 S0346: 1, L0438: 1, H0520: 1, H0547: 1 and H0519: 1.				
335	HETJG63	806385	345	109 - 462	1750			AR060: 10, AR055: 7, AR033: 5, AR096: 4, AR052: 4, AR039: 3, AR089: 3, AR061: 3, AR104: 2, AR053: 2 H0046: 2 and H0616: 1.				64-87
336	HLDRO45	806430	346	186 - 674	1751	Asn-133 to Trp-143, Ala-145 to Phe-151.		AR096: 2, AR039: 1, AR053: 1, AR089: 1, AR055: 1, AR060: 1, AR061: 1, AR033: 1, AR104: 0, AR052: 0 L0748: 11, L0752: 6, H0266: 5, L0770: 4, L0740: 4, L0750: 4, L0596: 4, S0212: 3, L0766: 3, L0803: 3, L0756: 3, H0402: 2, H0427: 2, S0010: 2, T0003: 2, T0067: 2, S0386: 2, T0041: 2, L0769: 2, L0796: 2, L0804: 2, H0576: 2, L0747: 2, H0445: 2, L0588: 2, L0599: 2, H0543: 2, H0556: 1, S6024: 1, H0341: 1, H0306: 1, H0340: 1, H0351: 1, S6014: 1, H0431:				99-130, 13-38, 57- 73, 36-52

337	HFIDZ38	806756	347	45 - 584	1752	1, H0331: 1, T0039: 1, S0280: 1, L0021: 1, H0036: 1, H0390: 1, H0052: 1, H0041: 1, H0123: 1, H0057: 1, H0083: 1, S0023: 1, H0510: 1, S0003: 1, H0628: 1, H0032: 1, H0674: 1, H0598: 1, S0036: 1, H0551: 1, S0448: 1, L0764: 1, L0648: 1, L0768: 1, L0375: 1, L0525: 1, L0809: 1, L0519: 1, L0647: 1, L0788: 1, S0126: 1, H0521: 1, S0406: 1, S3012: 1, S3014: 1, S0027: 1, L0439: 1, L0779: 1, L0757: 1, L0758: 1, H0444: 1, H0595: 1, H0665: 1, S0192: 1, H0423: 1 and H0352: 1. AR052: 3, AR033: 3, AR089: 3, AR055: 2, AR096: 2, AR060: 2, AR061: 2, AR039: 2, AR104: 2, AR053: 1 L0439: 5, L0777: 5, H0052: 4, L0803: 4, L0789: 4, L0666: 4, H0556: 3, H0090: 3, L0770: 3, L0766: 3, H0670: 3, L0747: 3, L0756: 3, L0755: 3, S0354:					64-85, 24- 40, 115- 131, 91- 107, 7-23
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338	HLMD095	810257	348	113 - 484	1753	Met-1 to Asn-8.	2, S0408: 2, H0580: 2, L0021: 2, H0135: 2, L0768: 2, L0805: 2, L0809: 2, L0787: 2, L0438: 2, H0547: 2, S0406: 2, L0754: 2, L0745: 2, L0758: 2, L0759: 2, S0192: 2, L0393: 1, H0657: 1, H0656: 1, H0661: 1, H0662: 1, S0356: 1, S0358: 1, S0360: 1, H0549: 1, H0486: 1, H0581: 1, H0009: 1, H0014: 1, H0548: 1, H0268: 1, S0015: 1, S0144: 1, S0344: 1, L0769: 1, L0800: 1, L0662: 1, L0767: 1, L0794: 1, L0804: 1, L0774: 1, L0775: 1, L0375: 1, L0632: 1, L0655: 1, L0807: 1, L0659: 1, L0517: 1, L0783: 1, L0647: 1, L0663: 1, L0664: 1, L0665: 1, L0352: 1, H0690: 1, H0521: 1, S0044: 1, L0740: 1, L0749: 1, L0752: 1, L0731: 1, H0543: 1, H0423: 1 and H0506: 1. AR089: 28, AR096: 27, AR053: 19, AR052: 18, AR039: 17, AR060: 17, AR033: 14, AR104: 11,				25-46, 94- 112, 56-72
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339	HSLGA19	810406	349	5 - 859	1754	Leu-28 to Arg-33, Glu-44 to Thr-49, Tyr-66 to Arg-72, Pro-82 to Ile-103.	AR055: 11, AR061: 7 AR052: 3, AR055: 3, AR061: 2, AR096: 2, AR089: 2, AR060: 2, AR033: 1, AR053: 1, AR039: 1, AR104: 1 H0381: 1, H0255: 1, S0052: 1 and S0028: 1.				192-213
340	HGBGM53	810461	350	38 - 355	1755	Gln-35 to Leu-40.	AR055: 8, AR052: 8, AR053: 6, AR060: 5, AR061: 4, AR089: 4, AR096: 4, AR033: 4, AR039: 3, AR104: 2 L0439: 6, H0556: 3, H0052: 2, H0413: 2, L0748: 2, L0754: 2, L0731: 2, H0543: 2, H0341: 1, S0418: 1, S0442: 1, S0360: 1, H0734: 1, S0007: 1, S0045: 1, H0393: 1, H0411: 1, H0545: 1, H0569: 1, H0014: 1, H0271: 1, H0416: 1, H0286: 1, H0130: 1, H0649: 1, H0529: 1, L0523: 1, L0438: 1, H0547: 1, H0593: 1, H0435: 1, S0380: 1, L0741: 1, L0744: 1, L0740: 1, L0749: 1, S0434: 1,				55-71, 77- 93



341	HIBCO73	810586	351	3 - 1100	1756			S0436: 1, L0366: 1, H0423: 1 and S0456: 1. AR096: 6, AR053: 6, AR052: 5, AR089: 3, AR055: 3, AR104: 2, AR060: 2, AR033: 2, AR061: 2, AR039: 1 L0748: 6, L0666: 3, L0749: 3, S0420: 2, H0486: 2, L0809: 2, L0789: 2, L0438: 2, H0521: 2, H0542: 2, H0713: 1, H0716: 1, S0212: 1, S0001: 1, H0125: 1, L0617: 1, S0356: 1, S0360: 1, S0300: 1, H0575: 1, H0253: 1, H0318: 1, H0581: 1, H0309: 1, H0081: 1, T0010: 1, H0634: 1, H0412: 1, H0059: 1, H0100: 1, L0769: 1, L0794: 1, L0803: 1, L0774: 1, L0806: 1, L0805: 1, L0659: 1, L0382: 1, L0663: 1, L0665: 1, S0126: 1, L0743: 1, L0777: 1 and L0592: 1.			151-168, 61-77
342	HDPOM13	810899	352	183 - 779	1757	Ser-34 to His-42, Pro-51 to Asp-63.		AR053: 2, AR055: 2, AR033: 1, AR096: 1, AR061: 1, AR104: 1, AR060: 1, AR039: 1,		181-199	

343	HMEJR75	811268	353	171 - 671	1758	Asn-20 to Arg-26, Pro-74 to Glu-79.	AR089: 0, AR052: 0 H0521: 8, H0522: 3, H0644: 2, L0769: 2, L0779: 2, H0580: 1, H0549: 1, S0002: 1 and L0791: 1. AR033: 7, AR055: 6, AR060: 4, AR089: 4, AR052: 4, AR061: 4, AR053: 4, AR039: 2, AR096: 1, AR104: 1 H0266: 2, S0354: 1, H0619: 1, S0250: 1, L0438: 1 and L0758: 1.	2p13	203800, 602404	81-97	
344	HOECE93	812221	354	54 - 575	1759	Leu-27 to Gln-34, Ser-48 to Ile-56, Lys-73 to Ser-86.	AR055: 7, AR033: 5, AR096: 5, AR060: 5, AR104: 4, AR061: 3, AR089: 3, AR053: 3, AR052: 2, AR039: 0 H0144: 6, L0803: 4, L0439: 4, L0749: 3, H0421: 2, H0052: 2, L0769: 2, L0774: 2, L0809: 2, L0438: 2, L0747: 2, L0731: 2, L0757: 2, L0758: 2, H0657: 1, L0021: 1, S0049: 1, H0327: 1, H0424: 1, H0674: 1, L0455: 1, L0456: 1, S0002: 1, L0763: 1, L0761: 1, L0642: 1, L0643: 1,			154-174, 126-144	

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345	HLHGA65	812445	355	22 - 444	1760	Thr-3 to Ser-16, His-30 to Asp-35, Thr-130 to Leu-135.	LO775: 1, L0793: 1, L0666: 1, H0693: 1, L0352: 1, S0126: 1, S0037: 1, L0742: 1, L0750: 1, L0759: 1 and L0361: 1. AR055: 12, AR052: 10, AR033: 9, AR060: 7, AR053: 7, AR061: 6, AR096: 6, AR089: 5, AR039: 3, AR104: 3 H0617: 4, H0024: 1, S0028: 1 and L0759: 1. AR055: 9, AR060: 7, AR033: 6, AR061: 6, AR089: 5, AR053: 5, AR052: 5, AR096: 4, AR039: 3, AR104: 3 H0717: 2, H0589: 2, S0444: 2, S0386: 2, L3905: 2, H0521: 2, S0356: 1, H0549: 1, H0575: 1, S0010: 1, T0010: 1, H0031: 1, H0553: 1, H0135: 1, H0090: 1, H0551: 1, S0144: 1, S0142: 1, L0521: 1, L0662: 1, L0803: 1, L0775: 1, L0663: 1, S0428: 1, H0144: 1, H0519: 1, H0522: 1, S0028: 1, L0592: 1 and	84-111, 39-57		
346	HMA8F89	812465	356	67 - 552	1761	Cys-20 to Pro-29, Glu-46 to Asp-52, Asp-59 to Ser-73.	125-156, 27-46, 100-123			

347	HLKDC74	812760	357	195 - 932	1762	Gly-25 to Gly-30, Pro-105 to Val-112, Glu-137 to Cys-146, Pro-215 to Cys-223, Pro-226 to Arg-240.	H0136: 1. AR060: 1, AR055: 1, AR096: 0, AR061: 0, AR039: 0, AR104: 0, AR033: 0, AR089: 0, AR052: 0, AR053: 0 H0542: 2, H0584: 1, H0611: 1, H0592: 1, H0427: 1, L0644: 1, L0648: 1, L0806: 1, H0522: 1, H0543: 1 and H0422: 1.	1p36.3 120550, 120570, 120575, 153454, 236250, 256700	171-200, 4-24
348	HDTAV81	813300	358	311 - 766	1763	Met-1 to Cys-8.	AR053: 11, AR096: 9, AR052: 9, AR039: 6, AR089: 4, AR033: 4, AR055: 3, AR060: 3, AR104: 3, AR061: 2 H0656: 2, H0457: 2, H0634: 2, H0521: 2, H0436: 2, H0341: 1, S0418: 1, H0486: 1, H0581: 1, H0271: 1, L0362: 1 and H0423: 1.		105-122
349	HETIZ34	815417	359	74 - 1915	1764	Pro-46 to Tyr-51.	AR033: 10, AR104: 9, AR055: 8, AR052: 8, AR060: 8, AR089: 6, AR096: 6, AR053: 5, AR061: 3, AR039: 3 S0222: 8, L0662: 8, L0005: 7, L0665: 7, L0659: 6, L0666: 6, H0547: 6,		477-500, 385-401, 448-464, 13-29, 514-530, 581-597, 166-182

L0740: 6, S6028: 4, L0483: 4, L0438: 4, L0754: 4, L0756: 4, L0779: 4, S0194: 4, S0049: 3, S0388: 3, L0646: 3, L0521: 3, L0663: 3, L0664: 3, H0435: 3, H0696: 3, L0439: 3, L0777: 3, H0624: 2, H0171: 2, S0356: 2, S0442: 2, S0354: 2, S0360: 2, S0408: 2, H0046: 2, H0563: 2, L0471: 2, S0051: 2, H0266: 2, H0040: 2, H0623: 2, S0440: 2, L0598: 2, L0520: 2, L0641: 2, L0771: 2, L0768: 2, L0774: 2, L0805: 2, L0776: 2, L0518: 2, L0565: 2, H0519: 2, H0670: 2, H0660: 2, H0648: 2, H0672: 2, S0028: 2, L0751: 2, L0731: 2, L0758: 2, S0031: 2, L0596: 2, L0595: 2, S0026: 2, S0196: 2, H0170: 1, H0686: 1, H0685: 1, H0717: 1, H0381: 1, S0212: 1, H0662: 1, S0418: 1, S0376: 1, S0045: 1, S0046: 1, H0411: 1, H0369: 1, H0550: 1, H0438: 1, H0602: 1, T0040: 1, H0013: 1,
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350	HWLIX39	815669	360	84 - 1052	1765	Ser-4 to Glu-11, Tyr-14 to Lys-29, Arg-101 to Arg-106, Gly-239 to Tyr-246.	H0427: 1, S0280: 1, H0590: 1, H0390: 1, S0474: 1, H0052: 1, T0110: 1, H0545: 1, H0178: 1, H0562: 1, H0123: 1, H0373: 1, H0201: 1, H0355: 1, S0003: 1, H0615: 1, H0428: 1, T0006: 1, H0031: 1, H0553: 1, H0032: 1, S0036: 1, H0163: 1, H0551: 1, L0564: 1, L0370: 1, S0370: 1, S0450: 1, L0769: 1, L0637: 1, L5565: 1, L0372: 1, L0773: 1, L0650: 1, L0806: 1, L0527: 1, L0526: 1, L0783: 1, L0809: 1, S0374: 1, H0520: 1, H0682: 1, H0659: 1, S0328: 1, S0330: 1, H0539: 1, S0380: 1, L0602: 1, S0152: 1, H0555: 1, L0753: 1, L0755: 1, L0759: 1, S0260: 1, S0434: 1, S0436: 1, L0366: 1, H0667: 1 and S0242: 1.	40-65, 197-214, 107-123, 160-176, 63-79
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351	HDTJT12	823632	361	37 - 354	1766	Pro-14 to Gly-23, Arg-93 to Pro-100.	1, H0586: 1, H0253: 1, H0039: 1, H0038: 1 and S0434: 1. AR089: 5, AR060: 3, AR033: 3, AR096: 3, AR039: 1, AR052: 1, AR061: 1, AR055: 0, AR104: 0, AR053: 0 H0618: 5, H0253: 5, L0758: 3, H0370: 2, H0107: 2, H0674: 2, H0135: 2, L0803: 2, H0521: 2, L0747: 2, L0779: 2, H0583: 1, S0212: 1, S0442: 1, S0358: 1, S0360: 1, S0408: 1, H0580: 1, S0046: 1, H0619: 1, H0393: 1, H0486: 1, H0635: 1, H0599: 1, H0590: 1, H0083: 1, H0510: 1, H0038: 1, H0488: 1, H0623: 1, H0494: 1, S0382: 1, L0770: 1, L0769: 1, L0648: 1, L0549: 1, L0791: 1, S0052: 1, H0519: 1, H0670: 1, H0666: 1, H0651: 1, S0404: 1, L0748: 1, L0777: 1, L0755: 1, S0434: 1, S0436: 1, L0588: 1, L0593: 1, L0601: 1, H0216: 1 and H0543: 1.	14q32.1	107280, 107280, 107400, 107400, 122500, 186960, 245200, 601841	68-93, 39- 59
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352	HSVCA10	824800	362	117 - 455	1767	Glu-14 to Met-26, Leu-77 to Asn-88, Lys-96 to Gly-104.	AR055: 7, AR052: 4, AR060: 4, AR061: 4, AR039: 4, AR053: 4, AR033: 3, AR096: 3, AR089: 2, AR104: 1 H0309: 1			44-64
353	HDFQA53	825910	363	91 - 459	1768	Ala-4 to Glu-13, Gln-80 to Trp-90.	AR039: 54, AR096: 22, AR033: 21, AR053: 21, AR055: 17, AR104: 15, AR089: 13, AR060: 12, AR052: 11, AR061: 9 S0474: 5, L0770: 3, L0790: 3, H0421: 2, S0422: 2, L0769: 2, L0759: 2, H0327: 1, H0566: 1, H0051: 1, S0036: 1, L3905: 1, L0803: 1, L0809: 1 and S0260: 1.			39-64, 57- 79, 89-114
354	HE9PC92	827237	364	309 - 776	1769	Met-1 to Glu-6, Ser-16 to Phe-40, Glu-75 to Leu-83, Cys-86 to Lys-99, Ser-116 to Asp-124, Leu-127 to Glu-136.	AR089: 5, AR060: 5, AR061: 5, AR096: 3, AR055: 3, AR033: 2, AR104: 2, AR039: 2, AR053: 1, AR052: 1 S0046: 1, H0592: 1, H0486: 1, H0013: 1, H0581: 1, L0809: 1 and H0144: 1.			39-73
355	HMSOU92	827837	365	261 - 653	1770	Ser-42 to Ser-47, Arg-91 to Lys-99.	AR039: 14, AR096: 13, AR089: 12, AR060: 10, AR104: 10, AR033: 8,			53-70, 7- 23



356	HE8OX52	828103	366	122 - 457	1771	Cys-29 to Asp-35, Pro-63 to Pro-70.	AR052: 7, AR053: 6, AR055: 5, AR061: 4 S0426: 2 and L0596: 2. AR061: 6, AR033: 5, AR055: 5, AR060: 4, AR104: 3, AR052: 3, AR053: 3, AR089: 2, AR096: 2, AR039: 0 L0415: 1, H0619: 1, H0013: 1, H0052: 1, T0010: 1, H0591: 1, H0521: 1, S3014: 1, L0439: 1, L0596: 1 and S0242: 1.	1p36.33- 1p36.11	120550, 120570, 120575, 130500, 133200, 600975	93-109
357	HDAAS81	828170	367	115 - 489	1772	Arg-16 to Glu-27, Gln-37 to Phe-44, Cys-52 to Glu-58, Leu-85 to Lys-91.	AR096: 2, AR061: 1, AR033: 1, AR060: 1, AR053: 0, AR104: 0, AR039: 0, AR089: 0, AR055: 0 L0754: 15, L0439: 14, L0666: 7, L0777: 7, S0003: 6, L0163: 4, H0553: 4, H0040: 4, L0803: 4, L0779: 4, L0755: 4, H0624: 3, S0358: 3, L0471: 3, S0426: 3, L0794: 3, L0659: 3, H0547: 3, L0602: 3, H0696: 3, L0748: 3, L0731: 3, L0757: 3, H0295: 2, S0212: 2, H0661: 2, S0376: 2,			97-124

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358	HUSIK57	828267	368	142 - 471	1773	Gly-71 to Leu-84.	<p>L0805: 1, L0653: 1, L0657: 1, L0789: 1, L0665: 1, H0144: 1, L0565: 1, H0519: 1, H0689: 1, H0682: 1, H0672: 1, S0330: 1, S0152: 1, H0521: 1, H0704: 1, S3014: 1, L0750: 1, L0758: 1, S0260: 1, H0595: 1, S0436: 1, L0591: 1, S0011: 1, H0667: 1, S0192: 1 and H0506: 1.</p> <p>AR052: 8, AR053: 7, AR033: 7, AR055: 5, AR089: 4, AR060: 4, AR096: 3, AR061: 3, AR039: 3, AR104: 2, L0779: 15, L0775: 9, L0758: 9, L0770: 7, L0769: 6, L0740: 5, L0754: 5, L0757: 5, S0408: 4, L0766: 4, L0789: 4, L0777: 4, L0759: 4, L0601: 4, H0224: 3, L0771: 3, L0776: 3, L0747: 3, L0752: 3, L0755: 3, H0549: 2, H0196: 2, H0083: 2, S0150: 2, L0763: 2, L0764: 2, L0787: 2, H0660: 2, L0750: 2, L0780: 2, H0170: 1, H0685: 1, S0040: 1, H0657: 1, H0638:</p>				40-71, 83-99, 32-48
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359	HPRBB67	828597	369	100 - 903	1774	Asp-50 to Ile-64, Gln-66 to Asp-71, Thr-177 to Ser-183, Arg-246 to Thr-263.	1, S0418: 1, S0356: 1, S0358: 1, H0329: 1, S0278: 1, H0550: 1, S0222: 1, H0586: 1, L0622: 1, L0021: 1, H0390: 1, L0471: 1, S0050: 1, H0014: 1, H0594: 1, H0266: 1, H0188: 1, H0615: 1, H0038: 1, H0272: 1, H0412: 1, H0560: 1, S0144: 1, L0772: 1, L0646: 1, L0773: 1, L0768: 1, L0774: 1, L0653: 1, L0655: 1, L0515: 1, L0526: 1, L0783: 1, L0383: 1, H0520: 1, H0648: 1, S0152: 1, S0190: 1, L0742: 1, L0746: 1, L0756: 1, H0542: 1 and H0352: 1.	1, S0418: 1, S0356: 1, S0358: 1, H0329: 1, S0278: 1, H0550: 1, S0222: 1, H0586: 1, L0622: 1, L0021: 1, H0390: 1, L0471: 1, S0050: 1, H0014: 1, H0594: 1, H0266: 1, H0188: 1, H0615: 1, H0038: 1, H0272: 1, H0412: 1, H0560: 1, S0144: 1, L0772: 1, L0646: 1, L0773: 1, L0768: 1, L0774: 1, L0653: 1, L0655: 1, L0515: 1, L0526: 1, L0783: 1, L0383: 1, H0520: 1, H0648: 1, S0152: 1, S0190: 1, L0742: 1, L0746: 1, L0756: 1, H0542: 1 and H0352: 1.				193-209, 152-168, 117-133
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360	HPIBM51	828682	370	177 - 617	1775	Glu-42 to Ser-53.	L0777: 2, H0265: 1, H0305: 1, S0356: 1, H0013: 1, H0318: 1, H0052: 1, H0309: 1, H0597: 1, L0471: 1, H0032: 1, L0455: 1, T0042: 1, S0142: 1, L0638: 1, L0768: 1, L0775: 1, L0651: 1, L0809: 1, L0788: 1, S0053: 1, S0216: 1, H0144: 1, S0328: 1, H0521: 1, H0523: 1, S0146: 1, H0478: 1, L0780: 1 and L0608: 1.				91-108
361	HLYFY81	828777	371	143 - 919	1776		AR055: 10, AR061: 9, AR060: 6, AR033: 5, AR052: 5, AR089: 4, AR053: 3, AR039: 2, AR096: 1, AR104: 1, H0583: 1, H0415: 1 and S0150: 1. AR033: 15, AR039: 13, AR055: 13, AR053: 12, AR096: 11, AR089: 11, AR052: 11, AR061: 10, AR104: 9, AR060: 8, L0770: 4, L0748: 3, L0750: 3, H0622: 2, H0169: 2, L0769: 2, L0766: 2, L0775: 2, L0806: 2, L0776: 2, H0436: 2, L0741: 2,				227-258

362	HDPLO68	828826	372	398 - 730	1777	Glu-22 to Lys-27, Glu-39 to Asn-44, Met-55 to Ser-60, Leu-71 to Gln-80.	L0740: 2, H0445: 2, H0556: 1, S0114: 1, H0657: 1, S0001: 1, H0255: 1, H0638: 1, S0444: 1, S0046: 1, H0231: 1, H0530: 1, H0546: 1, H0545: 1, H0123: 1, H0012: 1, H0051: 1, H0594: 1, H0039: 1, H0424: 1, H0617: 1, H0560: 1, H0366: 1, H0652: 1, L0369: 1, L0772: 1, L0773: 1, L0662: 1, L0387: 1, L0649: 1, L0783: 1, L0665: 1, S0152: 1, S012: 1, L0777: 1, L0757: 1, L0758: 1 and H0506: 1.					83-109	
363	HHEUU25	828922	373	174 - 1403	1778	Met-1 to Ser-9.	AR104: 2, AR039: 1, AR096: 1, AR033: 1, AR055: 1, AR060: 1, AR061: 0, AR089: 0, AR053: 0, AR052: 0 S0002: 2, H0431: 1, S0003: 1, H0644: 1, H0521: 1, S0044: 1, S0146: 1 and S0028: 1. AR053: 81, AR052: 72, AR033: 37, AR089: 34, AR096: 20, AR055: 14, AR060: 12, AR039: 11,	1p32-p34	120950, 120960, 130500, 133200,			305-321	

364	HNTBH70	828926	374	49 - 522	1779	Gly-101 to Tyr-110.	AR104: 9, AR061: 9 H0046: 6, L0794: 4, H0547: 4, L0439: 3, L0779: 3, H0543: 3, L0454: 2, L0768: 2, L0663: 2, L0665: 2, L0749: 2, L0777: 2, H0716: 1, H0657: 1, H0662: 1, S0278: 1, T0039: 1, H0013: 1, H0052: 1, L0471: 1, H0591: 1, H0264: 1, S0440: 1, S0150: 1, S0002: 1, L0369: 1, L0640: 1, L0770: 1, L0662: 1, L0766: 1, L0803: 1, L0804: 1, L0378: 1, L0806: 1, L0666: 1, H0519: 1, H0539: 1, H0521: 1, S0176: 1, H0555: 1, L0747: 1, L0755: 1, L0731: 1, L0758: 1, L0362: 1 and S0424: 1.	138140, 168360, 171760, 171760, 176100, 176100, 178300, 187040, 230000, 255800, 600101, 600650, 600650, 600722, 600722		
							AR096: 2, AR089: 2, AR033: 1, AR039: 1, AR061: 1, AR052: 1, AR060: 1, AR055: 0, AR053: 0, AR104: 0 S0414: 8, L0754: 7, L0766: 6, L0758: 5, L0794: 3, L0592: 3, S0007: 2, L0471: 2, H0032: 2, H0038: 2, L0659: 2, H0710: 2,			81-99

365	HMIAN37	828988	375	55 - 1137	1780	Asp-42 to Lys-57.	L0745: 2, L0756: 2, H0624: 1, H0171: 1, S0278: 1, H0389: 1, H0431: 1, H0632: 1, H0156: 1, L0157: 1, H0510: 1, H0416: 1, S0336: 1, S0003: 1, H0428: 1, H0553: 1, H0169: 1, H0212: 1, H0040: 1, H0634: 1, L0638: 1, L0662: 1, L0803: 1, L0804: 1, L0650: 1, L0774: 1, L0776: 1, L0655: 1, L0809: 1, L0791: 1, S0052: 1, H0519: 1, L0355: 1, H0696: 1, H0436: 1, H0478: 1, L0779: 1, L0755: 1, S0436: 1 and H0543: 1.				15-31, 172-190
							AR061: 3, AR033: 2, AR089: 2, AR060: 2, AR096: 1, AR052: 1, AR055: 1, AR104: 1, AR053: 1, AR039: 0, S0414: 26, L0777: 8, L0758: 8, L0439: 5, L0779: 5, L0752: 4, L0471: 3, H0266: 3, H0032: 3, S0422: 3, L0766: 3, L0803: 3, L0809: 3, S0380: 3, L0740: 3, L0731: 3, S0192: 3, H0170: 2, H0657: 2, S0358: 2, S6016: 2, H0574: 2,				



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367	HIBC'93	829308	377	282 - 938	1782	Met-1 to Asn-12, Glu-17 to Gln-26, Thr-43 to Ser-70, Ala-72 to Lys-88, Asp-131 to Val-136, Val-183 to Asp-190, Pro-192 to Ala-203.	L0369: 1, L0771: 1, L0521: 1, L0655: 1, L0783: 1, L0787: 1, S0374: 1, H0659: 1, S0152: 1, S0312: 1, L0439: 1, L0747: 1, L0750: 1, S0026: 1 and H0543: 1, AR053: 2, AR052: 2, AR096: 2, AR089: 2, AR033: 1, AR104: 1, AR055: 1, AR039: 1, AR060: 1, AR061: 1 L0740: 12, L0439: 10, L0766: 7, L0769: 4, L0794: 4, L0756: 4, H0549: 3, L0768: 3, L0803: 3, L0665: 3, S0206: 3, L0750: 3, H0423: 3, S0007: 2, S0010: 2, S0346: 2, H0052: 2, H0327: 2, H0024: 2, H0051: 2, L0763: 2, L0770: 2, H0144: 2, L0758: 2, H0556: 1, L0760: 1, S6026: 1, S0300: 1, H0550: 1, S0222: 1, H0392: 1, H0331: 1, H0013: 1, H0318: 1, S0049: 1, H0194: 1, H0103: 1, H0050: 1, L0471: 1, H0620: 1, H0373: 1, S0388: 1, T0010: 1, H0399: 1, H0553: 1, H0644: 1, H0032: 1,	6q21-q23.2	107470, 107470, 107470, 120110, 121014, 164200, 164200, 601316, 601666, 601757, 602772	88-106	
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368	HCUDM68	829463	378	14 - 457	1783	Asp-9 to Tyr-15, Pro-27 to Lys-48, Ser-61 to Asn-67, Asp-104 to Asn-113.	H0124: 1, H0068: 1, S0036: 1, H0135: 1, H0038: 1, H0616: 1, H0551: 1, T0067: 1, H0100: 1, H0560: 1, H0561: 1, L0662: 1, L0649: 1, L0774: 1, L0517: 1, L0809: 1, L0647: 1, L0789: 1, L0792: 1, L0352: 1, S0126: 1, H0539: 1, S0380: 1, H0518: 1, S0004: 1, S0044: 1, S3014: 1, L0748: 1, L0747: 1, L0686: 1, L0592: 1, S0196: 1 and H0352: 1.	1p32-p31	120950, 120960, 138140, 178300, 180069, 180069, 180069, 187040, 201450, 248610, 600101, 600309, 600650, 600650, 600722, 600722,	69-86	
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L0755: 3, L0731: 3, L0758: 3, L0599: 3, S0412: 3, S0410: 2, H0645: 2, H0369: 2, S0222: 2, H0497: 2, H0013: 2, H0251: 2, H0083: 2, H0615: 2, S0422: 2, L0631: 2, L0764: 2, L0803: 2, L0774: 2, L0775: 2, L0527: 2, L0659: 2, H0519: 2, H0711: 2, H0670: 2, H0539: 2, S0350: 2, H0436: 2, L0745: 2, L0750: 2, L0362: 2, L0600: 2, H0624: 1, H0171: 1, H0265: 1, H0556: 1, T0002: 1, H0717: 1, S6024: 1, T0049: 1, H0583: 1, H0650: 1, S0001: 1, H0662: 1, H0402: 1, H0638: 1, S0356: 1, S0376: 1, S0360: 1, H0329: 1, H0729: 1, H0728: 1, L0717: 1, H0351: 1, H0441: 1, H0455: 1, H0592: 1, H0586: 1, H0492: 1, H0485: 1, T0040: 1, H0244: 1, H0427: 1, L0022: 1, H0004: 1, S0010: 1, S0346: 1, T0048: 1, H0052: 1, H0596: 1, H0597: 1, H0046: 1, H0050: 1, L0471: 1, H0024: 1,	601676, 602522
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369	HCFCU33	829601	379	830 - 279	1784	Asp-37 to Tyr-46, Asn-48 to Gly-55, Ala-58 to Gly-65, Thr-68 to Trp-81, Ser-89 to Thr-101,	H0051: 1, S6028: 1, S0003: 1, H0428: 1, T0023: 1, L0483: 1, H0169: 1, L0456: 1, H0163: 1, H0090: 1, H0038: 1, H0040: 1, T0067: 1, H0380: 1, H0433: 1, H0268: 1, T0041: 1, H0494: 1, H0561: 1, H0646: 1, S0208: 1, S0002: 1, S0426: 1, H0743: 1, H0529: 1, L0520: 1, L0763: 1, L0667: 1, L0627: 1, L0800: 1, L0378: 1, L0806: 1, L0658: 1, L0512: 1, L0542: 1, L0783: 1, L0809: 1, L0519: 1, L0788: 1, L0789: 1, L0791: 1, L0666: 1, L0663: 1, H0144: 1, H0682: 1, H0659: 1, H0672: 1, S0330: 1, H0521: 1, H0478: 1, H0626: 1, L0780: 1, L0759: 1, H0444: 1, S0434: 1, L0596: 1, L0581: 1, L0601: 1, H0668: 1, H0667: 1, S0194: 1, H0423: 1 and : 1.	5q31.1	131400, 147061, 147575, 147575, 147575,	108-137, 137-168
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						Leu-105 to Arg-110.	H0545: 2, H0135: 2, S0342: 1, H0484: 1, S0358: 1, S0278: 1, H0550: 1, H0370: 1, H0574: 1, H0492: 1, H0599: 1, H0575: 1, H0546: 1, H0123: 1, H0050: 1, H0012: 1, H0620: 1, S0051: 1, H0100: 1, H0494: 1, S0352: 1, H0132: 1, H0130: 1, L0764: 1, L0766: 1, H0144: 1, H0519: 1, S0126: 1, H0670: 1, H0660: 1, H0696: 1, S3014: 1, L0748: 1, L0745: 1, L0756: 1, L0731: 1, H0445: 1, L0595: 1, S0196: 1 and H0422: 1.	153455, 159000, 181460, 600807, 601596, 602089		
370	HTGCM10	829736	380	2389 - 1391	1785	Arg-5 to Ser-10, Ser-29 to Ser-39, Tyr-99 to Asp-104, Asp-115 to Ile-129, Gln-131 to Asp-136, Ser-208 to Ser-215, Lys-236 to Glu-247, Ser-307 to Ser-316, His-325 to Asn-331.	AR055: 8, AR052: 7, AR096: 5, AR089: 5, AR033: 5, AR060: 5, AR053: 5, AR061: 4, AR104: 3, AR039: 2 L0748: 10, L0740: 8, L0754: 7, L0770: 5, H0539: 5, L0439: 5, L0362: 5, H0641: 4, L0777: 4, L0599: 4, L0603: 4, S0444: 3, H0486: 3, L0804: 3, H0547: 3, L0749: 3, L0750: 3, H0663: 2, S0360: 2, S0045:		258-274, 217-233, 182-198	

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371	HFIS05	830029	381	66 - 575	1786	Arg-9 to Thr-17, Lys-74 to Arg-89, Arg-135 to Glu-143, Ser-164 to Thr-170.	1, L0653: 1, L0776: 1, L0636: 1, L0792: 1, L0666: 1, H0520: 1, H0519: 1, H0593: 1, S0126: 1, H0659: 1, H0658: 1, H0710: 1, H0436: 1, S0027: 1, L0744: 1, L0747: 1, L0780: 1, L0752: 1, L0755: 1, L0758: 1, L0759: 1, S0436: 1, L0591: 1, L0592: 1 and S0276: 1. AR052: 8, AR096: 7, AR033: 7, AR104: 5, AR053: 5, AR089: 4, AR060: 4, AR055: 4, AR061: 3, AR039: 3 H0556: 11, H0046: 7, H0617: 6, L0750: 6, L0769: 5, L0766: 5, L0759: 5, S0434: 5, H0265: 3, H0584: 3, S0358: 3, S0360: 3, H0266: 3, L0770: 3, L0771: 3, L0439: 3, L0749: 3, H0543: 3, H0657: 2, H0484: 2, S0420: 2, S0007: 2, H0497: 2, H0623: 2, H0494: 2, S0440: 2, L0763: 2, L0764: 2, L0666: 2, H0144: 2, S0328: 2, S0330: 2, S0406: 2, L0751: 2, L0754:						102-118, 54-70
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372	H2CBH25	830128	382	150 - 770	1787		AR052: 48, AR033: 27, AR104: 25, AR061: 24, AR060: 23, AR096: 18, AR053: 18, AR089: 15, AR055: 13, AR039: 4 T0110: 1, H0032: 1, H0212: 1, H0090: 1 and H0494: 1.			96-114, 5- 21
373	HWLFQ55	830262	383	5 - 631	1788	Lys-4 to Glu-11.	AR089: 20, AR096: 9, AR052: 8, AR053: 6, AR060: 5, AR033: 4, AR039: 3, AR055: 3, AR104: 3, AR061: 2 S0354: 3, H0050: 1, L0483: 1 and H0670: 1.			28-59, 86- 102
374	HWLBK80	830339	384	231 - 548	1789		AR096: 9, AR104: 9, AR033: 7, AR089: 6, AR039: 5, AR060: 5, AR053: 4, AR052: 3, AR061: 2, AR055: 2 S0374: 2			76-92, 53- 69
375	HWHQR45	830348	385	75 - 911	1790	Ile-72 to Asn-77, Asp-98 to Gly-104.	AR033: 5, AR053: 5, AR052: 4, AR055: 4, AR089: 3, AR061: 2, AR060: 2, AR096: 1, AR104: 0, AR039: 0 H0663: 1, H0586: 1, H0587: 1, H0039: 1, S0440: 1 and L0771: 1.			10-30, 41- 57, 171- 187, 194- 210

376	HTTDO45	830542	386	447 - 1637	1791	Leu-184 to Trp-190, Val-208 to Met-217, Glu-221 to Thr-228, Val-238 to Gly-243, Asp-266 to Asn-272, Arg-370 to Lys-375.	AR060: 13, AR061: 11, AR089: 6, AR033: 5, AR104: 4, AR053: 4, AR096: 3, AR039: 3, AR055: 2, AR052: 2 L0803: 30, S0358: 13, S0360: 6, S0438: 6, L0794: 6, L0774: 6, L0805: 6, H0717: 5, S0408: 5, S0440: 5, L0769: 5, L0775: 5, L0777: 5, S0444: 4, H0510: 4, L0439: 4, L0747: 4, L0731: 4, L0757: 4, L0601: 4, S0026: 4, H0556: 3, H0509: 3, L0662: 3, L0776: 3, L0807: 3, S0406: 3, L0581: 3, L0608: 3, H0624: 2, T0002: 2, S0218: 2, S0354: 2, H0722: 2, S0007: 2, H0333: 2, H0574: 2, H0599: 2, L0471: 2, H0373: 2, H0188: 2, H0644: 2, H0040: 2, L0761: 2, L0363: 2, L0651: 2, L0659: 2, L0783: 2, L0789: 2, H0521: 2, S0028: 2, L0744: 2, L0748: 2, L0745: 2, L0749: 2, S0436: 2, L0588: 2, L0362: 2, T0049: 1, H0657: 1, H0341: 1, H0638: 1,	18		376-392, 278-294, 246-262
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377	HRGDD63	830829	387	38 - 370	1792	Phe-2 to His-9, Cys-16 to His-23, Val-31 to Arg-37, Pro-104 to Tyr-111.	S0442: 1, H0637: 1, H0441: 1, H0431: 1, H0586: 1, L0623: 1, H0013: 1, S0280: 1, H0575: 1, T0082: 1, H0581: 1, S0049: 1, L0033: 1, H0596: 1, L0040: 1, H0231: 1, S0362: 1, H0355: 1, H0622: 1, T0023: 1, S0366: 1, H0135: 1, H0163: 1, H0591: 1, H0551: 1, H0059: 1, L0564: 1, S0142: 1, S0344: 1, L0764: 1, L0773: 1, L0768: 1, L0766: 1, L0389: 1, L0804: 1, L0376: 1, L0527: 1, L0809: 1, L0665: 1, H0144: 1, H0723: 1, H0547: 1, H0519: 1, S0126: 1, H0672: 1, S0330: 1, H0522: 1, H0134: 1, S0037: 1, L0754: 1, L0752: 1, L0755: 1, S0031: 1, H0707: 1, H0667: 1, H0542: 1, H0543: 1 and H0008: 1.				36-64, 76- 92
							AR053: 6, AR055: 6, AR096: 6, AR039: 5, AR052: 4, AR060: 4, AR033: 4, AR089: 4, AR061: 3, AR104: 2 H0271: 21, H0179: 11,				

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									L0755: 1, L0731: 1, L0758: 1, S0031: 1, S0011: 1, H0136: 1, H0423: 1 and H0422: 1.					92-113, 72-88	
378	HTNBX62	830831	388	897 - 1235	1793	Glu-10 to Arg-21, Arg-31 to Lys-47, Val-58 to Glu-63.			AR052: 36, AR053: 32, AR096: 24, AR089: 16, AR033: 13, AR039: 12, AR055: 12, AR060: 10, AR104: 10, AR061: 5 S0358: 9, S0380: 2, H0656: 1, S0418: 1, H0580: 1, H0587: 1, H0632: 1, H0581: 1, H0046: 1, H0024: 1, S0003: 1, T0023: 1, H0388: 1, T0067: 1, H0561: 1, H0641: 1, H0529: 1, H0651: 1, S0152: 1, H0522: 1, L0747: 1, L0779: 1, L0777: 1, L0752: 1, H0445: 1 and H0422: 1.						
379	HLICA76	831204	389	154 - 1320	1794				AR096: 3, AR053: 1, AR052: 1, AR089: 1, AR060: 1, AR033: 1, AR039: 0, AR061: 0, AR104: 0, AR055: 0 L0439: 11, L0777: 10, L0803: 9, L0794: 6, L0766: 6, L0438: 6, S0358: 4, L0764: 3, L0809: 3, L0789:	4				131-147, 185-201, 113-129	

380	HAPOA59	831307	390	354 - 935	1795	Phe-19 to Arg-27, Pro-46 to Phe-54, Ser-85 to Leu-91, Arg-115 to Thr-122.	3, L0748: 3, L0740: 3, H0355: 2, L0435: 2, L0775: 2, L0530: 2, S0380: 2, L0747: 2, L0756: 2, L0758: 2, L0588: 2, L0362: 2, H0171: 1, H0556: 1, H0713: 1, H0583: 1, L0418: 1, S0282: 1, S0354: 1, S0376: 1, S0444: 1, S0360: 1, S0278: 1, T0040: 1, H0069: 1, H0120: 1, H0581: 1, H0046: 1, H0024: 1, H0510: 1, S6028: 1, H0615: 1, H0428: 1, L0483: 1, H0038: 1, H0413: 1, S0438: 1, S0426: 1, L0796: 1, L0646: 1, L0645: 1, L0767: 1, L0768: 1, L0650: 1, L0375: 1, L0776: 1, L0659: 1, L4559: 1, L0665: 1, S0374: 1, H0547: 1, H0519: 1, H0672: 1, H0710: 1, S0044: 1, S0406: 1, L0750: 1, L0779: 1, L0755: 1, L0731: 1, S0026: 1, H0216: 1, H0542: 1 and S0424: 1.					
						AR055: 10, AR052: 9, AR060: 8, AR053: 8, AR033: 7, AR061: 7, AR096: 6, AR089: 6,						128-144



381	HILMMX3 7	831314	391	112 - 450	1796	Arg-13 to Gln-20.	AR104: 4, AR039: 4 L0766: 4, L0438: 4, H0013: 3, H0575: 3, H0050: 3, H0616: 3, S0126: 3, L0439: 3, L0757: 3, L0758: 3, H0556: 2, H0341: 2, T0110: 2, H0572: 2, L0770: 2, L0803: 2, L0759: 2, S0420: 1, S0360: 1, S0408: 1, S0132: 1, H0619: 1, S6016: 1, T0109: 1, H0318: 1, H0266: 1, S0250: 1, H0615: 1, H0428: 1, H0039: 1, S0036: 1, H0135: 1, H0591: 1, H0038: 1, H0040: 1, H0056: 1, T0041: 1, H0560: 1, L0769: 1, L0637: 1, L0794: 1, L0804: 1, L0666: 1, L0664: 1, H0144: 1, H0520: 1, H0519: 1, H0648: 1, H0539: 1, S0152: 1, H0696: 1, S0406: 1, H0540: 1, L0748: 1, L0740: 1, L0747: 1, L0756: 1, L0752: 1, L0592: 1, L0581: 1, L0593: 1, L0096: 1 and H0423: 1. AR055: 10, AR033: 6, AR052: 6, AR096: 5, AR060: 5, AR053: 5,					58-79
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382	HWLHW6 4	831475	392	115 - 990	1797	Lys-113 to Thr-119, Asp-156 to Gly-162.	AR061: 5, AR089: 5, AR104: 3, AR039: 2 S0192: 7, L0803: 5, L0800: 4, L0789: 4, L0758: 4, L0804: 3, L0747: 3, H0255: 2, L0764: 2, L0659: 2, L0666: 2, L0754: 2, L0779: 2, S0420: 1, L0617: 1, S0376: 1, H0550: 1, H0618: 1, H0597: 1, H0350: 1, H0266: 1, H0286: 1, H0688: 1, H0622: 1, H0616: 1, H0494: 1, L0761: 1, L0645: 1, L0774: 1, L0656: 1, L0382: 1, L0809: 1, H0684: 1, S0436: 1, L0601: 1 and H0665: 1.					247-263, 129-145
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383	HHERA41	831577	393	447 - 860	1798	Tyr-14 to Leu-27, Glu-39 to Ser-47.	1, H0661: 1, S0356: 1, S0442: 1, S0360: 1, H0592: 1, H0587: 1, H0036: 1, H0590: 1, H0024: 1, H0510: 1, H0252: 1, H0039: 1, H0553: 1, S0440: 1, L0772: 1, L0646: 1, L0374: 1, L0773: 1, L0766: 1, L0803: 1, L0804: 1, L0774: 1, L0784: 1, L0806: 1, L0653: 1, L0655: 1, S0374: 1, S0328: 1, S3012: 1, L0749: 1, L0731: 1, L0758: 1 and H0677: 1. AR096: 5, AR033: 4, AR053: 4, AR104: 4, AR060: 3, AR052: 3, AR055: 3, AR089: 3, AR039: 2, AR061: 2 L0758: 3, S0358: 2, H0521: 2, L0439: 2, S0114: 1, H0341: 1, S0442: 1, H0734: 1, H0411: 1, H0592: 1, S0280: 1, L0021: 1, H0263: 1, S0214: 1, S0438: 1, S0422: 1, L0764: 1, L0766: 1, L0776: 1, L0783: 1, L0809: 1, L0789: 1, L0663: 1, H0696: 1, L0748: 1, L0740: 1, L0745: 1,					102-120, 69-85, 50- 66
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384	HFXT43	831638	394	10 - 528	1799	Asn-2 to Gly-7, Thr-24 to Ser-29, Pro-65 to Ser-70, Ser-126 to Thr-132, Thr-161 to Leu-166.	L0777: 1, L0755: 1, L0759: 1, L0596: 1 and H0543: 1. AR055: 14, AR053: 13, AR052: 12, AR060: 12, AR033: 10, AR096: 10, AR089: 8, AR061: 7, AR104: 6, AR039: 4 H0596: 4, L0754: 4, H0521: 3, L0439: 3, H0580: 2, H0486: 2, T0010: 2, S0250: 2, H0616: 2, L0740: 2, L0759: 2, H0624: 1, H0171: 1, S0282: 1, S0046: 1, H0485: 1, H0156: 1, H0581: 1, H0051: 1, H0355: 1, S0003: 1, S0214: 1, H0111: 1, H0090: 1, H0264: 1, S0386: 1, L0766: 1, L0651: 1, S0122: 1, H0518: 1, S0152: 1, H0522: 1, L0744: 1, L0777: 1, L0731: 1, L0758: 1, S0436: 1 and S0242: 1.				107-123, 142-158
385	HE8CL14	831872	395	304 - 1671	1800	Gly-37 to Leu-43, Ala-114 to Arg-122.	AR053: 17, AR096: 15, AR052: 14, AR055: 13, AR089: 11, AR060: 10, AR033: 8, AR061: 8, AR104: 7, AR039: 3 L0754: 6, L0766: 4,				122-150, 311-340, 1-34, 46- 65, 289- 309, 223- 243, 18-34

386	HLWFI59	832119	396	10 - 1077	1801	Gly-22 to Arg-31, Pro-33 to Pro-40, Ala-44 to Lys-51, Ser-57 to Asp-62, Ser-68 to Lys-95.	S0354: 3, L0764: 3, L0803: 3, L0748: 3, H0638: 2, H0013: 2, H0051: 2, S0002: 2, L0805: 2, L0664: 2, L0777: 2, L0731: 2, L0758: 2, L0759: 2, H0721: 2, H0624: 1, H0171: 1, H0556: 1, H0661: 1, H0486: 1, H0318: 1, H0009: 1, H0570: 1, H0594: 1, S0214: 1, H0169: 1, H0038: 1, H0616: 1, H0561: 1, L0761: 1, L0651: 1, L0790: 1, L0792: 1, H0648: 1, H0672: 1, L0439: 1, L0745: 1, L0779: 1, L0752: 1, L0596: 1, L0599: 1 and L0362: 1. AR033: 5, AR089: 4, AR060: 3, AR061: 2, AR096: 1, AR053: 1, AR055: 1, AR052: 0, AR104: 0, AR039: 0 L0439: 8, L0777: 8, L0666: 4, S0010: 3, H0615: 3, L0637: 3, L0659: 3, L0664: 3, H0648: 3, L0748: 3, L0731: 3, S0412: 3, S0132: 2, S0476: 2, S0222: 2, H0497: 2, H0031: 2, L0774: 2, L0665: 2, H0144:					326-344, 172-188
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387	HAJCQ05	832451	397	100 - 885	1802	Pro-70 to Lys-75, Leu-159 to Gln-173, Arg-227 to Glu-235.	2, L0438: 2, L0754: 2, L0757: 2, L0758: 2, S0194: 2, H0171: 1, H0265: 1, H0717: 1, S0110: 1, H0669: 1, S0358: 1, S0300: 1, H0369: 1, H0550: 1, S6016: 1, S0414: 1, H0013: 1, H0427: 1, H0599: 1, H0327: 1, H0123: 1, H0553: 1, H0628: 1, H0032: 1, H0264: 1, H0488: 1, S0438: 1, L0769: 1, L0805: 1, L0809: 1, L0663: 1, S0374: 1, S0148: 1, H0435: 1, H0659: 1, H0670: 1, S0328: 1, S0004: 1, H0696: 1, L0744: 1, L0753: 1, L0755: 1, L0759: 1, S0031: 1, S0434: 1, H0667: 1 and H0506: 1. AR052: 8, AR039: 7, AR033: 7, AR061: 6, AR089: 6, AR096: 6, AR104: 5, AR055: 5, AR053: 4, AR060: 4 H0617: 5, S0418: 4, L0769: 4, L0751: 3, L0731: 3, H0657: 2, H0635: 2, H0618: 2, H0581: 2, H0546: 2, H0606: 2, H0561: 2, L0794: 2, L0439: 2, S0284:				43-62, 120-137, 98-114, 9- 25, 200- 216
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388	HAGHC54	832485	398	208 - 597	1803	Ser-119 to Cys-125.	1, H0265: 1, S0420: 1, S0358: 1, S0046: 1, H0486: 1, H0253: 1, H0318: 1, H0545: 1, H0510: 1, S0314: 1, L0483: 1, H0213: 1, H0551: 1, H0380: 1, H0647: 1, L0644: 1, L0764: 1, L0499: 1, L0655: 1, L0659: 1, L0666: 1, H0698: 1, H0547: 1, H0670: 1, H0672: 1, S3012: 1, L0754: 1, L0745: 1, L0749: 1, L0779: 1, L0758: 1, H0445: 1 and H0543: 1.				45-65, 99- 118
389	HULAY53	832587	399	181 - 516	1804		AR089: 6, AR052: 6, AR060: 6, AR033: 6, AR055: 5, AR096: 4, AR053: 3, AR061: 3, AR104: 2, AR039: 1 L0748: 8, S0346: 2, H0144: 2, L0754: 2, H0656: 1, S0358: 1, S0408: 1, H0331: 1, H0620: 1, L0805: 1, L0531: 1, H0682: 1 and S0424: 1.	2			91-107, 74-90
							AR053: 3, AR033: 2, AR055: 2, AR052: 1, AR060: 1, AR061: 0, AR096: 0, AR089: 0,				

390	HE9DL48	832624	400	9 - 458	1805	Met-1 to Gly-7.	AR039: 0, AR104: 0 AR096: 170, AR052: 156, AR089: 119, AR060: 98, AR053: 72, AR039: 53, AR104: 47, AR033: 42, AR061: 39, AR055: 14 H0144: 2				95-113, 24-40
391	HFKEH50	833067	401	323 - 1603	1806	Ser-107 to Gly-115, Cys-202 to Thr-214, Glu-241 to Gly-248, Thr-265 to Leu-276, Gly-298 to Gly-305, Ala-382 to Gly-389, Thr-402 to Gly-414.	AR089: 3, AR060: 1, AR053: 1, AR033: 1, AR039: 0, AR104: 0, AR096: 0, AR052: 0, AR061: 0, AR055: 0 L0439: 8, L0751: 6, L0747: 6, L0665: 5, L0438: 4, L0779: 4, H0012: 3, L0748: 3, H0620: 2, H0594: 2, H0424: 2, H0553: 2, S0144: 2, L0769: 2, L0771: 2, L0809: 2, H0144: 2, H0593: 2, S0027: 2, L0777: 2, L0758: 2, L0587: 2, H0422: 2, H0171: 1, H0664: 1, H0619: 1, S0222: 1, H0492: 1, H0618: 1, H0581: 1, H0052: 1, H0150: 1, H0024: 1, S0388: 1, S0364: 1, H0135: 1, H0040: 1, L0640: 1, L0761: 1, L0372:				83-103, 223-239



392	HUSXK49	834541	402	966 - 475	1807	Asn-34 to Arg-43, Arg-96 to Phe-102, Phe-106 to Gly-121, Gln-153 to Thr-158.	1, L0773: 1, L0648: 1, L0662: 1, L0766: 1, L0774: 1, L0629: 1, L0666: 1, L0664: 1, H0658: 1, H0521: 1, S3014: 1 and H0543: 1. AR039: 24, AR053: 17, AR052: 17, AR033: 16, AR055: 14, AR089: 13, AR096: 12, AR104: 9, AR060: 9, AR061: 7 L0758: 4, H0014: 1, S0051: 1, H0038: 1, H0413: 1, H0529: 1, L0770: 1, L0769: 1, L0794: 1 and L0752: 1.				52-69, 77- 93
393	HTSFU12	834610	403	73 - 420	1808	Arg-8 to Glu-15, Gln-38 to Gln-43, Thr-50 to Arg-68, Gln-95 to Gln-106.	AR055: 11, AR061: 7, AR096: 7, AR089: 6, AR060: 6, AR052: 6, AR033: 6, AR053: 5, AR039: 1, AR104: 0 L0761: 7, L0747: 6, S0045: 4, L0766: 4, L0755: 4, L0770: 3, S0126: 3, L0731: 3, H0657: 2, H0730: 2, L0623: 2, H0546: 2, H0150: 2, H0012: 2, H0620: 2, H0529: 2, H0739: 1, S6024: 1, T0049: 1, H0381: 1, H0663: 1, H0306: 1,				65-99

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								1, S0045: 1, H0587: 1, H0486: 1, H0599: 1, H0581: 1, H0530: 1, H0544: 1, H0163: 1, H0090: 1, H0100: 1, L0770: 1, L5566: 1, L0364: 1, L0649: 1, L0803: 1, L0659: 1, L0809: 1, L0789: 1, L0352: 1, S0380: 1, L0749: 1, L0750: 1, L0758: 1, L0581: 1 and H0667: 1.				
395	HTEJP13	834931	405	665 - 1147	1810	Pro-17 to Pro-23, Arg-40 to Tyr-50, Arg-143 to Ala-154.		AR053: 23, AR052: 20, AR096: 18, AR055: 16, AR060: 13, AR089: 13, AR104: 9, AR061: 9, AR033: 9, AR039: 7 H0616: 3, L0758: 3, L0717: 1, H0038: 1 and L0779: 1.			65-102, 85-102	
396	HDQHB46	835271	406	174 - 698	1811	Asp-9 to Asn-21, Pro-24 to Ser-38, Thr-54 to Tyr-61, Asp-126 to Asn-131, Asp-133 to Asp-138, Cys-167 to Ile-175.		AR096: 5, AR052: 3, AR089: 3, AR033: 2, AR053: 2, AR060: 2, AR039: 2, AR055: 1, AR061: 1, AR104: 0 H0641: 10, H0521: 10, H0575: 6, L0599: 6, H0638: 4, H0435: 3, L0758: 3, L0600: 3, H0616: 2, H0413: 2, H0423: 2, T0049: 1,	3		136-162	

397	HCETE50	835488	407	158 - 595	1812				H0657: 1, H0580: 1, H0486: 1, H0042: 1, H0123: 1, H0375: 1, H0031: 1, H0038: 1, H0412: 1, H0652: 1, L0648: 1, L0794: 1, L0776: 1, L0787: 1, H0518: 1, H0522: 1 and H0707: 1. AR033: 8, AR055: 2, AR039: 2, AR061: 2, AR089: 2, AR060: 1, AR096: 1, AR104: 1, AR052: 0, AR053: 0 L0439: 25, L0438: 5, L0742: 5, S0010: 4, S0412: 2, S0222: 1, H0592: 1, H0013: 1, H0156: 1, H0194: 1, H0178: 1, H0024: 1, S0051: 1, T0010: 1, L0455: 1, S0036: 1, L0371: 1, L0794: 1, L0809: 1, H0547: 1, H0539: 1 and L0786: 1. AR053: 67, AR052: 49, AR096: 48, AR089: 35, AR039: 25, AR060: 22, AR104: 20, AR033: 16, AR055: 8, AR061: 6 H0486: 2			101-134, 22-38, 124-140, 49-65
398	HDTBO48	835717	408	123 - 896	1813				AR053: 67, AR052: 49, AR096: 48, AR089: 35, AR039: 25, AR060: 22, AR104: 20, AR033: 16, AR055: 8, AR061: 6 H0486: 2	180-214		
399	HODGL01	835896	409	813 - 172	1814	Trp-6 to Ala-14, Ala-33 to Gly-43,			AR055: 5, AR053: 4, AR060: 3, AR061: 3,	154-190, 123-141		

						Trp-68 to His-73.	AR033: 3, AR052: 3, AR089: 3, AR039: 3, AR096: 2, AR104: 1 H0250: 9, H0271: 7, L0743: 6, L0751: 6, L0745: 6, S0360: 5, H0265: 4, L0666: 4, H0521: 4, H0556: 3, H0716: 3, S0280: 3, L0662: 3, H0713: 2, H0662: 2, S0278: 2, H0486: 2, H0615: 2, L0805: 2, L0655: 2, L0664: 2, H0672: 2, S0378: 2, L0746: 2, S0434: 2, L0581: 2, S0196: 2, H0650: 1, H0656: 1, S0116: 1, S0420: 1, S0444: 1, H0580: 1, H0619: 1, S6022: 1, H0635: 1, H0427: 1, L0021: 1, H0253: 1, S0474: 1, H0457: 1, H0355: 1, S0334: 1, H0286: 1, S0312: 1, H0252: 1, H0032: 1, H0634: 1, H0063: 1, H0551: 1, S0440: 1, H0649: 1, L0771: 1, L0649: 1, L0803: 1, L0774: 1, L0806: 1, L0636: 1, L0791: 1, L0793: 1, L0665: 1, H0690: 1, H0670: 1, H0660: 1, H0648: 1, H0518: 1, S0174: 1,				
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400	HE8TO35	835965	410	1710 - 2150	1815	Pro-45 to Gln-55.	H0555: 1, H0436: 1, S0032: 1, L0744: 1, H0343: 1, L0584: 1, S0242: 1, H0422: 1 and H0506: 1. AR061: 3, AR096: 2, AR055: 2, AR060: 2, AR104: 2, AR033: 1, AR053: 1, AR089: 1, AR052: 1, AR039: 0 H0046: 2, H0009: 2, H0090: 2, H0494: 2, L0438: 2, H0547: 2, H0521: 2, L0439: 2, L0777: 2, H0543: 2, H0556: 1, S0342: 1, S0045: 1, H0619: 1, H0632: 1, H0013: 1, H0156: 1, L0021: 1, H0575: 1, H0318: 1, S0003: 1, L0483: 1, H0628: 1, H0623: 1, H0561: 1, L0761: 1, L0803: 1, L0804: 1, L0659: 1, L0382: 1, H0144: 1, H0539: 1, S0152: 1, H0478: 1, H0631: 1, L0741: 1, L0740: 1 and L0591: 1. AR096: 1, AR039: 1, AR052: 1, AR104: 1, AR061: 1, AR089: 1, AR055: 1, AR053: 0,						117-133, 90-106
401	HOHCB06	836191	411	17 - 619	1816							143-176	

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402	H2CBN10	836762	412	173 - 1075	1817	Arg-195 to Phe-203, Ser-258 to Thr-264.	AR033: 380, AR061: 335, AR060: 243, AR104: 243, AR055: 238, AR096: 231, AR089: 178, AR053: 132, AR052: 131, AR039: 122 L0750: 2, H0580: 1, S0010: 1, T0110: 1, H0457: 1, H0436: 1, L0779: 1, L0752: 1 and H0543: 1.			116-138, 202-226, 49-67, 148-166, 270-286, 174-190, 99-115, 22-38, 1- 17, 78-94
403	HBJNB08	836997	413	130 - 1266	1818	Tyr-20 to Asn-26, Ala-37 to Ser-46, Thr-99 to Glu-105, Cys-163 to Arg-171, Tyr-204 to Leu-215, His-279 to Phe-285, Ala-334 to Ala-349, Ala-363 to Gly-379.	AR033: 2, AR053: 2, AR089: 2, AR060: 2, AR052: 1, AR096: 1, AR039: 1, AR061: 1, AR055: 0 L0750: 8, H0318: 6, L0764: 6, S0002: 5, L0771: 5, L0665: 5, L0438: 5, L0747: 5, S0442: 4, H0046: 4, L0655: 4, L0809: 4, L0666: 4, L0740: 4, S0356: 3, S0444: 3, H0486: 3, L0646: 3, L0794: 3, L0766: 3, S0360: 2, H0036: 2, S0426: 2, L0372: 2, L0773: 2, L0776: 2, L0659: 2, L0663: 2, H0519: 2, H0555: 2, L0777: 2, S0436: 2, L0596: 2, L0591: 2, L0362: 2, H0542: 2, H0506: 2, S0212: 1, S0045: 1, H0575:			301-328, 288-304



404	HHAMF80	837474	414	110 - 427	1819	Ser-3 to Gly-12, Ala-16 to Arg-28, Lys-62 to Leu-68.	1, H0590: 1, S0010: 1, S0346: 1, H0705: 1, H0581: 1, H0052: 1, T0110: 1, H0597: 1, H0239: 1, H0622: 1, H0644: 1, H0674: 1, H0163: 1, H0591: 1, H0038: 1, H0087: 1, H0100: 1, S0448: 1, S0440: 1, S0142: 1, H0529: 1, L0763: 1, L0804: 1, L0775: 1, L0651: 1, L0806: 1, L0805: 1, L0783: 1, L0790: 1, L0791: 1, L0664: 1, H0701: 1, H0593: 1, H0670: 1, H0539: 1, S0406: 1, S3012: 1, S0028: 1, L0439: 1, L0751: 1, L0755: 1, H0445: 1, S0434: 1, H0423: 1 and S0424: 1.					41-57, 77- 98
							AR096: 1, AR089: 1, AR104: 1, AR033: 1, AR061: 1, AR060: 0, AR053: 0, AR052: 0, AR055: 0, AR039: 0 H0599: 2, L0663: 2, S0136: 2, L0740: 2, S0418: 1, H0550: 1, H0592: 1, H0587: 1, H0373: 1, H0090: 1, S0422: 1, L0763: 1, S0052: 1, S0013: 1, H0696:					

405	HDPUR66	837522	415	199 - 771	1820	Gly-10 to Phe-18, Gly-28 to Asp-40.	1, L0749: 1, L0779: 1 and L0485: 1. AR060: 12, AR096: 7, AR039: 5, AR053: 4, AR052: 3, AR033: 3, AR055: 3, AR089: 3, AR104: 3, AR061: 2 S6022: 1, H0486: 1, H0560: 1, L0565: 1 and H0521: 1.				124-143
406	HBWBX66	837523	416	183 - 656	1821	Gln-10 to Arg-16, Leu-31 to Thr-38, Val-49 to Arg-55, Cys-77 to Ser-82, Ser-102 to Ala-107.	AR089: 1, AR053: 1, AR033: 1, AR104: 1, AR061: 0, AR039: 0, AR055: 0, AR096: 0, AR060: 0, AR052: 0 S0386: 2, S0420: 1, H0013: 1, H0457: 1, S0250: 1, S0390: 1, L0596: 1 and H0422: 1.				58-74
407	HMHBR95	837526	417	22 - 531	1822	Leu-14 to Asp-19, Gly-47 to Trp-55, Ser-102 to Ser-107, Asp-136 to Cys-143.	AR104: 6, AR061: 2, AR096: 2, AR060: 1, AR053: 1, AR089: 1, AR033: 0, AR055: 0, AR052: 0 L0745: 12, L0771: 7, L0766: 3, L0746: 3, L0777: 3, L0764: 2, L0775: 2, L0779: 2, L0757: 2, L0404: 1, S0360: 1, H0351: 1,				26-42, 55- 71, 145- 161, 110- 126

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409	HMEAD61	837597	419	107 - 1093	1824	Phe-80 to Gly-85, Glu-148 to Trp-157.	L0770: 1, L0796: 1, L0761: 1, L0667: 1, L0646: 1, L0764: 1, L0771: 1, L0766: 1, L0375: 1, L0655: 1, L0657: 1, L0659: 1, L0517: 1, L0383: 1, L0382: 1, L0543: 1, L0666: 1, L0664: 1, H0703: 1, S0374: 1, H0520: 1, H0519: 1, H0689: 1, H0682: 1, H0659: 1, H0658: 1, S0328: 1, S0404: 1, S0406: 1, S0027: 1, L0740: 1, L0746: 1, L0750: 1, L0759: 1, H0445: 1, L0480: 1, L0584: 1, S0242: 1, S0276: 1, H0543: 1, H0423: 1, H0422: 1, S0446: 1, L0600: 1 and H0352: 1, AR053: 15, AR096: 15, AR089: 12, AR052: 12, AR104: 9, AR060: 8, AR033: 7, AR039: 6, AR055: 6, AR061: 4 L0766: 5, L0439: 4, L0754: 4, L0758: 4, H0656: 3, H0031: 3, H0038: 3, H0657: 2, S0029: 2, S0222: 2, H0455: 2, H0618: 2, H0081: 2, H0617: 2, T0042: 2, S0210: 2, H0529: 2,					234-252, 18-34
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411	HKAJL51	837785	421	22 - 351	1826	Glu-2 to Ala-19, Leu-23 to Gln-40.			AR096: 2, AR055: 1, AR089: 1, AR033: 1, AR060: 1, AR052: 1, AR061: 1, AR039: 0, AR053: 0 L0754: 118, L0748: 42, H0553: 29, L0757: 15, L0755: 13, L0603: 11, H0030: 10, H0031: 10, H0644: 6, L0740: 6, L0142: 5, H0100: 5, L0731: 4, L0005: 3, H0551: 2, H0494: 2, L0439: 2, L0747: 2, L0749: 2, L0780: 2, S0242: 2, H0657: 1, S0418: 1, H0053: 1, H0036: 1, H0546: 1, L0471: 1, H0051: 1, H0328: 1, H0615: 1, L0143: 1, H0111: 1, H0413: 1, L0666: 1, L0663: 1, H0518: 1, S0332: 1, S0454: 1, H0704: 1, H0555: 1, L0756:			71-87, 46- 62	

412	HODGZ47	837858	422	419 - 1024	1827	Ser-88 to Leu-95, Ser-99 to Ser-106, Pro-134 to His-140.	1, L0601: 1, S0011: 1 and H0136: 1. AR096: 3, AR061: 2, AR033: 2, AR089: 1, AR060: 1, AR052: 1, AR053: 0, AR039: 0, AR055: 0, AR104: 0 H0615: 2, H0040: 1, H0272: 1 and H0436: 1.			163-193, 21-56, 9- 26, 59-77, 183-199
413	HTJMQ74	838145	423	172 - 1044	1828	Met-1 to Gly-7, Cys-47 to Arg-52, Asp-97 to His-102, Asn-280 to Met-291.	AR039: 4, AR096: 3, AR052: 3, AR053: 3, AR089: 3, AR033: 2, AR055: 2, AR061: 2, AR104: 2, AR060: 1 H0586: 6, L0777: 5, H0661: 3, S0476: 2, H0592: 2, H0587: 2, H0494: 2, S0001: 1, H0486: 1, H0013: 1, S0280: 1, H0251: 1, L0738: 1, S0214: 1, H0488: 1, L0369: 1, L0770: 1, L0637: 1, L0772: 1, L0659: 1, L0647: 1, L0666: 1, H0724: 1, H0519: 1, H0682: 1, S0027: 1, S0028: 1, S0206: 1, L0747: 1, L0755: 1 and H0595: 1.			161-190, 232-254, 111-138, 200-216, 66-82, 137-153, 26-42
414	HOHCE56	838619	424	544 - 1812	1829	Ser-4 to Asn-10, Pro-29 to Cys-38,	AR033: 1, AR096: 1, AR104: 1, AR089: 0,			75-92



Pro-64 to Thr-70, Glu-95 to Tyr-100, Lys-106 to Arg-115, Thr-139 to Ser-146, Arg-160 to Glu-166, Gly-205 to Gly-218, Ser-252 to Leu-258, Gly-278 to Thr-288, Gln-340 to Phe-350, Ser-378 to Gly-391, Gly-398 to Arg-423.	AR061: 0, AR055: 0, AR039: 0, AR060: 0, AR053: 0 L0743: 9, H0620: 8, L0754: 8, L0731: 8, L0742: 7, S0126: 6, H0486: 5, H0012: 4, S0250: 4, L0747: 4, H0051: 3, H0039: 3, L0770: 3, L0654: 3, L0780: 3, S0040: 2, H0294: 2, L0149: 2, H0586: 2, H0253: 2, H0052: 2, H0545: 2, H0050: 2, H0024: 2, H0622: 2, H0124: 2, S0036: 2, H0135: 2, S0112: 2, H0494: 2, L0662: 2, L0806: 2, L0659: 2, H0689: 2, H0435: 2, L0741: 2, L0740: 2, L0751: 2, L0779: 2, L0777: 2, L0752: 2, L0755: 2, L0366: 2, S0192: 2, H0624: 1, S6024: 1, H0295: 1, H0484: 1, S0420: 1, L0619: 1, S0356: 1, H0208: 1, S0046: 1, S0300: 1, H0351: 1, H0549: 1, H0455: 1, H0333: 1, H0575: 1, H0544: 1, H0123: 1, H0081: 1, S0050: 1, S0051: 1, H0594: 1, S0022: 1, H0551: 1,
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415	HLJB45	838808	425	309 - 644	1830	Ser-56 to Asn-61.	<p>H0059: 1, H0100: 1, S0002: 1, L0763: 1, L5575: 1, L0772: 1, L0646: 1, L0771: 1, L0803: 1, L0636: 1, L0647: 1, L0787: 1, L0793: 1, L0666: 1, L0665: 1, H0726: 1, H0547: 1, H0593: 1, S0044: 1, S0390: 1, S3014: 1, S0027: 1, S0028: 1, S0032: 1, L0750: 1, L0756: 1, L0757: 1, L0758: 1, L0592: 1 and L0603: 1.</p> <p>AR089: 20, AR052: 14, AR033: 14, AR060: 11, AR096: 9, AR053: 9, AR055: 7, AR104: 7, AR061: 5, AR039: 5, S0358: 5, H0521: 4, S0418: 3, S0126: 3, H0658: 3, L0748: 3, L0740: 2, L0750: 2, S0040: 1, H0294: 1, H0228: 1, H0393: 1, H0357: 1, H0586: 1, H0490: 1, H0486: 1, H0013: 1, H0427: 1, H0098: 1, H0575: 1, S0010: 1, T0048: 1, H0581: 1, S0049: 1, L0471: 1, H0375: 1, H0266: 1, H0328: 1, H0688: 1, H0428: 1, H0039: 1, H0169: 1,</p>	2p22-p21	<p>120435, 120435, 126600, 135300, 136435, 152790, 152790, 157170, 182601, 278300, 601071, 601771, 602134</p>	<p>88-107, 34-50, 61- 77, 13-29</p>	
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416	HSHCL04	838860	426	661 - 1014	1831	Arg-31 to Asn-36.	H0135: 1, H0372: 1, H0494: 1, H0560: 1, H0633: 1, S0144: 1, H0529: 1, L0654: 1, H0520: 1, H0435: 1, H0660: 1, S0330: 1, L0602: 1, L0439: 1, L0731: 1, H0668: 1, H0665: 1 and H0542: 1.				1-24, 61- 88, 53-70, 35-51
417	HBJBR52	839006	427	349 - 1170	1832	Met-1 to Gly-7, Ala-45 to Gly-53, Leu-76 to Phe-84, Lys-135 to Thr-141.	AR096: 8, AR089: 6, AR060: 5, AR052: 5, AR053: 5, AR033: 4, AR055: 4, AR039: 3, AR061: 3, AR104: 2 S0053: 2, H0171: 1 and S0037: 1.				140-158, 22-38, 237-254, 105-121, 210-226

418	HSLEK65	839237	428	53 - 730	1833	Thr-184 to Phe-190, Thr-219 to Ser-226.	H0623: 1, S0038: 1, L0370: 1, H0561: 1, S0422: 1, L0770: 1, L0772: 1, L0642: 1, L0803: 1, L0774: 1, L0656: 1, L0663: 1, S0428: 1, H0519: 1, S0330: 1, H0539: 1, H0521: 1, H0555: 1, H0576: 1, L0588: 1, L0605: 1 and H0667: 1. AR033: 2, AR104: 1, AR055: 1, AR060: 1, AR052: 1, AR096: 1, AR089: 1, AR061: 1, AR053: 1, AR039: 0 S0278: 13, S0144: 12, S0142: 9, H0521: 8, S0222: 6, S0282: 5, H0638: 5, S0344: 5, S0028: 5, L0731: 5, S0001: 4, S0045: 3, S0049: 3, L0755: 3, S0031: 3, H0351: 2, S0051: 2, H0100: 2, S0428: 2, L0756: 2, H0624: 1, H0716: 1, H0455: 1, H0333: 1, H0575: 1, H0052: 1, H0041: 1, H0009: 1, N0006: 1, T0010: 1, H0375: 1, S6028: 1, H0416: 1, H0617: 1, H0606: 1, H0068: 1, S0036: 1, S0112: 1, S0438: 1, S0440:					1-25, 35- 56, 188- 210, 85- 107, 155- 171, 61-77
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419	HWGAF42	839272	429	315 - 650	1834	Met-1 to Thr-7, Leu-24 to Glu-31, Gln-34 to Gly-44, Gly-82 to Ser-87, Asp-94 to Leu-99, Ala-102 to Glu-107.	1, S0002: 1, L0763: 1, L0769: 1, L0637: 1, L0806: 1, L0658: 1, L0666: 1, S0126: 1, L0355: 1, S0332: 1, H0522: 1, S0044: 1, S0390: 1, S0436: 1 and L0599: 1.				
							AR033: 29, AR052: 29, AR039: 28, AR053: 26, AR104: 25, AR089: 23, AR096: 19, AR055: 18, AR060: 14, AR061: 12 L0805: 51, L0776: 33, L0439: 31, L0789: 8, L0741: 8, L0438: 7, L0769: 6, L0777: 6, H0052: 5, H0617: 5, L0748: 4, L0750: 4, L0779: 4, L0753: 4, H0424: 3, S0036: 3, L0775: 3, L0809: 3, S0378: 3, S0040: 2, L0103: 2, H0046: 2, H0284: 2, T0006: 2, H0213: 2, S0038: 2, L0351: 2, L0764: 2, L0768: 2, L0794: 2, L0659: 2, H0670: 2, L0602: 2, L0747: 2, L0731: 2, L0758: 2, S0436: 2, L0592: 2, S0342: 1, S0282: 1, S0030: 1, H0484: 1, S0007: 1, S0278: 1,				41-68

420	HOUEA63	839547	430	375 - 1598	1835	Ser-10 to Asp-28, Ser-51 to Arg-85, Val-92 to Asn-97, Tyr-123 to Gly-133, Glu-138 to Lys-145, Thr-265 to Gly-276, Thr-303 to Gln-308, Leu-314 to Thr-321, Leu-331 to Thr-339, Lys-347 to Leu-354.	H0261: 1, S0222: 1, H0441: 1, H0156: 1, T0082: 1, H0194: 1, H0231: 1, T0010: 1, S6028: 1, H0271: 1, L0483: 1, H0418: 1, H0181: 1, H0412: 1, S0112: 1, S0370: 1, S0144: 1, S0002: 1, L0520: 1, L0762: 1, L0763: 1, L0638: 1, L0772: 1, L0653: 1, L0636: 1, L0367: 1, L0788: 1, L0791: 1, L0665: 1, L0352: 1, H0672: 1, H0539: 1, S0032: 1, L0742: 1, L0740: 1 and H0667: 1.					177-193
							AR033: 5, AR055: 5, AR089: 4, AR052: 4, AR060: 4, AR096: 4, AR053: 4, AR061: 4, AR104: 2, AR039: 0 H0553: 3, H0494: 3, L0748: 3, H0457: 2, H0031: 2, H0521: 2, S0040: 1, S0218: 1, H0662: 1, S0418: 1, S0354: 1, S0045: 1, H0411: 1, H0549: 1, H0586: 1, H0497: 1, H0331: 1, H0486: 1, H0013: 1, H0036: 1, H0050: 1, S0036: 1, L0370: 1, S0002: 1, L0766:					

421	HLWAW3 6	839561	431	213 - 1133	1836	Ala-4 to Asn-18, Leu-69 to Gln-75, Asp-114 to Pro-119, Ala-153 to Arg-162, Glu-166 to Glu-202, Ala-209 to Ser-244.	1, L0375: 1, H0144: 1, H0659: 1, S0027: 1, L0745: 1, L0599: 1, L0604: 1, H0543: 1 and S0424: 1. AR096: 3, AR033: 2, AR061: 2, AR089: 2, AR053: 2, AR052: 2, AR039: 1, AR055: 1, AR060: 1, AR104: 1 L0748: 15, L0439: 10, H0046: 9, L0758: 8, L0596: 7, L0589: 7, H0013: 6, L0769: 6, L0666: 6, H0556: 5, H0341: 5, S0420: 5, L0766: 5, L0659: 5, H0521: 5, H0575: 4, H0083: 4, H0266: 4, H0553: 4, H0032: 4, H0551: 4, L0771: 4, L0775: 4, L0665: 4, H0518: 4, S0152: 4, L0740: 4, L0751: 4, H0170: 3, H0265: 3, H0657: 3, H0656: 3, S0418: 3, S0358: 3, S0476: 3, H0687: 3, H0628: 3, H0617: 3, H0090: 3, S0150: 3, L0646: 3, L0768: 3, L0776: 3, L0809: 3, L0664: 3, H0144: 3, H0547: 3, H0519: 3, H0711: 3, L0747: 3, L0752: 3, L0759: 3,	15q26.1	166800, 210900	241-268
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	H0663: 1, H0664: 1, H0662: 1, H0638: 1, S0356: 1, S0376: 1, S0444: 1, S0408: 1, S0132: 1, H0393: 1, L0717: 1, H0351: 1, S0278: 1, H0261: 1, H0403: 1, H0592: 1, H0586: 1, H0497: 1, H0333: 1, H0632: 1, H0257: 1, H0486: 1, H0250: 1, H0075: 1, H0635: 1, H0036: 1, H0590: 1, H0253: 1, H0421: 1, T0103: 1, T0110: 1, H0327: 1, H0545: 1, H0009: 1, H0123: 1, H0050: 1, H0051: 1, S0051: 1, T0010: 1, H0355: 1, H0188: 1, H0288: 1, S0312: 1, S0314: 1, H0615: 1, H0039: 1, H0622: 1, L0455: 1, S0366: 1, H0598: 1, H0135: 1, H0040: 1, H0413: 1, H0056: 1, H0100: 1, L0435: 1, L0564: 1, H0494: 1, L0475: 1, H0334: 1, H0560: 1, H0641: 1, H0633: 1, H0647: 1, H0646: 1, S0344: 1, S0208: 1, S0210: 1, L0369: 1, L0763: 1, L0770: 1, L0667: 1, L0772: 1, L0372: 1, L0800: 1,	
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422	HDPHI63	839704	432	144 - 452	1837	Glu-18 to Phe-29, Thr-36 to Pro-45.	AR096: 10, AR039: 4, AR055: 4, AR033: 4, AR053: 3, AR089: 3, AR104: 3, AR052: 2, AR060: 2, AR061: 2				74-91		
423	HTEPM45	839875	433	132 - 1229	1838	Leu-3 to Leu-16, Leu-48 to Phe-58, Gly-113 to Lys-121, Arg-136 to Phe-147, Pro-326 to Ser-346.	AR096: 14, AR089: 10, AR060: 6, AR061: 6, AR055: 5, AR039: 5, AR052: 4, AR033: 3, AR053: 2, AR104: 2	6p25-p24	134570, 601090, 602028	88-106, 246-262, 63-79, 169-185			



				4, H0628: 4, H0090: 4, UNKWN: 4, L0663: 4, L0664: 4, S0374: 4, S0380: 4, L0744: 4, S0242: 4, H0295: 3, H0645: 3, H0411: 3, H0546: 3, H0012: 3, S0250: 3, L0768: 3, L0375: 3, H0684: 3, H0672: 3, S0332: 3, L0754: 3, H0294: 2, H0663: 2, H0592: 2, S0005: 2, H0333: 2, H0632: 2, H0485: 2, T0060: 2, H0599: 2, H0309: 2, H0544: 2, H0545: 2, H0041: 2, H0375: 2, H0553: 2, L0142: 2, H0647: 2, L0776: 2, L0665: 2, H0648: 2, S0330: 2, S0378: 2, S0206: 2, S0032: 2, L0751: 2, H0668: 2, S0384: 2, H0506: 2, L0615: 1, S0342: 1, H0381: 1, S0116: 1, S0001: 1, H0664: 1, H0125: 1, S0354: 1, T0008: 1, H0640: 1, H0370: 1, H0391: 1, T0039: 1, H0101: 1, H0245: 1, H0156: 1, L0021: 1, H0122: 1, H0318: 1, H0231: 1, H0049: 1, T0003: 1, H0051: 1, H0286: 1, H0364: 1,									
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424	HTTBP06	839885	434	156 - 1244	1839	Met-1 to Ser-12, Asn-23 to Thr-33, Asn-35 to Gly-42, Pro-46 to Asp-51, Arg-86 to Asp-92, Ile-98 to Gly-108, Tyr-111 to Phe-128, Asn-140 to Cys-146, Gly-151 to Lys-182, Gly-190 to Ala-196, Leu-200 to Gln-212, Ile-217 to Lys-224,	H0428: 1, T0023: 1, L0143: 1, H0111: 1, H0163: 1, H0591: 1, H0038: 1, H0616: 1, H0058: 1, T0069: 1, H0080: 1, L0351: 1, L0564: 1, H0646: 1, H0654: 1, S0208: 1, L0763: 1, L0373: 1, L0764: 1, L0773: 1, L0648: 1, L0521: 1, L0767: 1, L0522: 1, L0775: 1, L0806: 1, L0607: 1, L0512: 1, L0634: 1, L0526: 1, L0783: 1, L0367: 1, H0547: 1, H0682: 1, H0659: 1, H0660: 1, H0666: 1, S0118: 1, S0037: 1, H0445: 1, L0590: 1, L0603: 1, H0665: 1, H0667: 1 and S0446: 1.				259-276
						AR104: 874, AR060: 684, AR055: 616, AR033: 568, AR061: 555, AR039: 520, AR089: 289, AR096: 146, AR052: 115, AR053: 114 H0038: 8, H0616: 6, L0758: 4, L0794: 3, H0545: 2, H0040: 1, L0768: 1 and L0790: 1.					

425	HSKYK23	839888	435	204 - 869	1840	Val-316 to Asn-324. Asn-19 to Pro-28, Ile-45 to Tyr-52.	AR039: 19, AR052: 17, AR055: 17, AR053: 16, AR089: 15, AR096: 13, AR060: 13, AR104: 12, AR033: 10, AR061: 8 L0794: 7, S0152: 6, L0750: 6, L0777: 6, L0803: 4, L0748: 4, L0731: 4, L0757: 4, L0759: 4, L0804: 3, L0659: 3, L0752: 3, S0358: 2, S0444: 2, S0360: 2, S0045: 2, L0766: 2, L0751: 2, L0756: 2, S0031: 2, L0588: 2, H0663: 1, S0442: 1, H0580: 1, S0046: 1, H0393: 1, H0486: 1, H0575: 1, H0318: 1, H0041: 1, H0123: 1, H0375: 1, H0687: 1, S0003: 1, H0031: 1, S0144: 1, H0529: 1, L0763: 1, L0662: 1, L0774: 1, L0775: 1, L0806: 1, L0518: 1, L0789: 1, L0663: 1, H0672: 1, S0380: 1, H0521: 1, H0694: 1, S0406: 1, S0206: 1, L0740: 1, L0779: 1, L0755: 1, S0242: 1 and S0424: 1.				132-148
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426	HBUAD85	839958	436	117 - 953	1841	Trp-10 to Gly-16, Ser-19 to Asp-31, Ser-46 to Lys-53, Pro-60 to Ile-78, Ser-85 to Leu-91, Leu-146 to Lys-154, Trp-237 to Arg-246.	AR052: 14, AR053: 8, AR033: 7, AR055: 7, AR104: 7, AR060: 5, AR096: 5, AR089: 4, AR061: 4, AR039: 1 L0777: 8, L0794: 7, L0803: 4, L0748: 4, L0749: 4, L0789: 3, L0759: 3, S0360: 2, H0644: 2, S0422: 2, L0770: 2, L0800: 2, L0766: 2, L0804: 2, L0740: 2, L0750: 2, L0779: 2, L0752: 2, L0755: 2, L0731: 2, L0758: 2, L0595: 2, S0116: 1, S0442: 1, H0729: 1, H0733: 1, S0300: 1, L0021: 1, H0575: 1, H0122: 1, S0182: 1, H0569: 1, H0090: 1, H0038: 1, H0412: 1, S0440: 1, L0371: 1, L0769: 1, L0761: 1, L0764: 1, L0771: 1, L0521: 1, L0768: 1, L5574: 1, L0783: 1, L0382: 1, L0809: 1, L0790: 1, L0663: 1, H0520: 1, H0547: 1, H0659: 1, H0522: 1, H0134: 1, H0436: 1, H0626: 1, L0747: 1, L0753: 1, L0757: 1, H0444: 1, S0436: 1, S0194: 1,			154-171
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									S0276: 1, H0543: 1 and H0423: 1.				
427	HCEIN85	840000	437	777 - 1880	1842		Leu-14 to Pro-22, Pro-127 to Pro-134, Ala-140 to Arg-145, Ser-189 to Gln-203, Leu-273 to Tyr-278.		AR089: 1, AR060: 1, AR039: 0, AR104: 0, AR055: 0, AR053: 0, AR061: 0, AR096: 0, AR033: 0				86-105
428	HROAX39	840008	438	30 - 341	1843		Leu-38 to Trp-43, Ala-72 to Thr-77.		AR039: 35, AR055: 23, AR033: 19, AR052: 18, AR053: 17, AR089: 15, AR060: 12, AR096: 12, AR104: 11, AR061: 10, H0068: 2, H0619: 1, H0632: 1, L0471: 1, H0033: 1, H0124: 1, H0316: 1, L0747: 1 and H0136: 1.				46-65
429	HHETF37	840056	439	84 - 383	1844		Ala-12 to Glu-17, Gly-29 to Arg-35, Leu-62 to Trp-68.		AR096: 5, AR052: 2, AR089: 2, AR033: 2, AR061: 2, AR060: 1, AR104: 1, AR055: 1, AR053: 0, AR039: 0, H0436: 2, S0354: 1, L0775: 1, L0658: 1, H0445: 1, H0543: 1 and H0422: 1.				67-87
430	HKAAS52	840160	440	40 - 873	1845		Met-1 to Ala-13, Cys-38 to Ile-43, Arg-65 to Leu-70, Tyr-185 to Leu-192.		AR052: 4, AR033: 3, AR053: 3, AR089: 3, AR060: 2, AR096: 2, AR055: 2, AR061: 1,				71-88



431	HISES36	840222	441	136 - 747	1846	Lys-217 to Thr-226.	AR039: 0, AR104: 0 H0494: 3, H0559: 2, H0547: 2, L0740: 2, H0423: 2, H0265: 1, H0662: 1, S0348: 1, S0418: 1, H0370: 1, H0492: 1, H0318: 1, H0052: 1, H0194: 1, H0050: 1, H0006: 1, H0266: 1, L0351: 1, L0766: 1, L0655: 1, S0310: 1, H0689: 1, S0152: 1, H0522: 1, H0543: 1 and H0422: 1.				
						Ser-4 to Arg-13, Pro-15 to Trp-22.	AR039: 18, AR033: 12, AR104: 12, AR053: 9, AR052: 9, AR096: 9, AR055: 8, AR089: 8, AR060: 5, AR061: 5 L0741: 3, H0619: 2, T0010: 2, H0539: 2, H0717: 1, L0438: 1, H0435: 1, H0670: 1, H0521: 1, S0436: 1 and H0542: 1.				113-143, 62-81
432	HAPBL12	840579	442	215 - 1549	1847	Lys-16 to Leu-21, Glu-70 to Lys-83, Cys-98 to Ser-104, Arg-112 to Glu-118, Lys-155 to Ser-160, Asn-196 to Ser-205, Trp-234 to Ser-241,	AR060: 14, AR104: 13, AR033: 11, AR039: 10, AR055: 9, AR089: 8, AR096: 7, AR061: 7, AR053: 6, AR052: 6 L0777: 11, L0756: 4, L0596: 4, S0414: 3, H0038:				50-66, 178-194, 276-292

						Ala-303 to Ala-308, Thr-314 to Gly-321, Asn-349 to Gly-355, Pro-370 to Glu-378, His-384 to Glu-395, Gln-415 to Ile-421, Thr-438 to Leu-444.	3, L0659: 3, L0740: 3, H0265: 2, H0441: 2, S0003: 2, H0032: 2, H0616: 2, L0766: 2, H0144: 2, S0126: 2, L0439: 2, L0780: 2, L0759: 2, S0242: 2, H0542: 2, S0470: 1, S0342: 1, H0650: 1, H0341: 1, S0001: 1, S0282: 1, S0420: 1, S0007: 1, S0476: 1, H0619: 1, T0060: 1, H0013: 1, H0427: 1, H0098: 1, H0042: 1, H0581: 1, S0049: 1, H0052: 1, H0046: 1, H0024: 1, H0051: 1, S6028: 1, H0553: 1, H0644: 1, H0212: 1, H0634: 1, H0551: 1, H0647: 1, S0144: 1, S0344: 1, L0770: 1, L0769: 1, L0639: 1, L0772: 1, L0662: 1, L0794: 1, L0803: 1, L0805: 1, L0666: 1, L0663: 1, L0664: 1, S0374: 1, H0547: 1, H0648: 1, H0696: 1, L0754: 1, L0747: 1, L0752: 1, L0755: 1 and L0591: 1.				
433	HTJMJ95	840671	443	330 - 1001	1848		AR039: 17, AR033: 11, AR096: 8, AR053: 8, AR052: 7, AR104: 7,			121-137	

434	HTEL:T78	840700	444	177 - 998	1849	Arg-5 to Glu-11.	AR089: 7, AR055: 6, AR060: 5, AR061: 5 L0766: 6, L0439: 6, L0749: 5, S0022: 3, H0628: 2, L0769: 2, L0774: 2, L0666: 2, S0152: 2, L0755: 2, H0170: 1, S0476: 1, H0333: 1, H0559: 1, H0270: 1, L0021: 1, H0599: 1, H0123: 1, H0014: 1, S0003: 1, H0617: 1, L0055: 1, H0068: 1, H0135: 1, H0488: 1, H0509: 1, L0763: 1, L0637: 1, L0761: 1, L0772: 1, L0662: 1, L0768: 1, L0650: 1, L0655: 1, L0382: 1, L0809: 1, L0751: 1, L0747: 1, L0750: 1, L0756: 1, L0777: 1, L0731: 1, L0758: 1 and L0759: 1.					208-229, 235-251
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435	HHFBP51	840811	445	100 - 690	1850	Pro-75 to Lys-91.	L0592: 1. AR089: 1, AR039: 1, AR055: 0, AR096: 0, AR061: 0, AR104: 0, AR060: 0, AR053: 0 L0774: 4, S0134: 2, H0383: 2, S0344: 2, L0803: 2, S0380: 2, H0650: 1, H0656: 1, S0360: 1, S0222: 1, H0486: 1, H0013: 1, H0009: 1, H0050: 1, S6028: 1, S0214: 1, T0023: 1, H0494: 1, H0561: 1, S0142: 1, S0002: 1, L0638: 1, L0512: 1, L0791: 1, H0547: 1, S0328: 1, H0579: 1, S0013: 1, L0742: 1, L0759: 1 and L0581: 1.			164-196, 43-75, 91- 113, 138- 156
436	HHBCS13	840896	446	470 - 1249	1851	Thr-22 to Ser-36.	AR096: 10, AR089: 10, AR104: 9, AR039: 9, AR033: 6, AR053: 5, AR060: 5, AR052: 2, AR055: 2, AR061: 2			89-105
437	HAJAT72	841335	447	500 - 946	1852		AR039: 28, AR053: 17, AR096: 11, AR033: 10, AR052: 9, AR104: 9, AR089: 8, AR055: 7, AR060: 6, AR061: 4			79-95

438	HTLHK92	842395	448	123 - 476	1853	Glu-12 to Lys-31.	H0561: 1 and S0152: 1. AR039: 12, AR055: 8, AR033: 7, AR053: 7, AR089: 6, AR052: 6, AR096: 6, AR060: 5, AR061: 4, AR104: 4 L0774: 3, L0783: 3, L0777: 3, H0013: 2, H0024: 2, L0662: 2, L0768: 2, L0565: 2, L0751: 2, L0758: 2, L0603: 2, H0170: 1, S6024: 1, H0661: 1, S0360: 1, S0222: 1, H0370: 1, H0575: 1, H0618: 1, H0545: 1, S0388: 1, H0124: 1, S0440: 1, S0150: 1, S0142: 1, L0770: 1, L0769: 1, L0764: 1, L0649: 1, L0375: 1, L0634: 1, L0809: 1, L0666: 1, H0547: 1, L0743: 1, L0754: 1, L0749: 1, L0731: 1, L0757: 1, H0506: 1 and H0008: 1.			52-71, 90- 106
439	HAGBQ10	843516	449	1475 - 594	1854	Ser-9 to Ile-16, Asp-110 to Ala-119, Glu-289 to Tyr-294.	AR055: 496, AR039: 256, AR089: 232, AR060: 215, AR033: 209, AR053: 177, AR096: 155, AR052: 154, AR061: 146, AR104: 120 L0439: 5, L0779: 2,			128-147, 266-282, 29-45

440	HCRBB73	844034	450	83 - 520	1855				L0777: 2, L0759: 2, H0156: 1, S0010: 1, S0049: 1, H0052: 1, H0328: 1, L0794: 1, L0804: 1, H0144: 1, L0438: 1, L0352: 1, L0758: 1, L0589: 1 and S0412: 1. AR096: 116, AR053: 115, AR089: 113, AR033: 94, AR052: 89, AR061: 79, AR055: 68, AR060: 67, AR039: 22, AR104: 20 L0794: 4, L0778: 1, T0048: 1, H0327: 1, H0012: 1, H0083: 1, H0038: 1, H0509: 1, L0770: 1, L0769: 1, L0659: 1, L0789: 1 and H0520: 1.			64-96, 3-34, 99-120, 38-55	
441	HWHHU1 1	844529	451	85 - 678	1856	Pro-55 to Lys-67, Lys-134 to Glu-144, Pro-166 to Asn-174, Pro-192 to Trp-197.			AR089: 5, AR052: 4, AR053: 4, AR096: 3, AR061: 3, AR060: 3, AR055: 3, AR033: 3, AR104: 1, AR039: 0 L0748: 18, H0547: 8, L0731: 8, H0556: 7, H0039: 6, L0666: 6, H0046: 5, H0059: 5, L0775: 5, L0439: 5, L0755: 5, H0622: 4, L0662: 4, L0740: 4, L0751: 4, L0779: 4, H0575: 3,			21-54, 112-132, 67-89, 92-108	

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442	HRAEB76	845247	452	1194 -	1857	Πε-19 to Lys-25.	AR096: 8, AR039: 4, H0620: 1, H0024: 1, H0057: 1, H0014: 1, S0051: 1, H0083: 1, S0024: 1, H0355: 1, H0266: 1, H0271: 1, H0188: 1, S0250: 1, H0328: 1, H0615: 1, L0483: 1, H0030: 1, H0031: 1, H0111: 1, H0032: 1, H0383: 1, H0674: 1, H0211: 1, L0456: 1, H0068: 1, H0135: 1, H0040: 1, H0634: 1, H0551: 1, H0412: 1, S0450: 1, H0647: 1, H0646: 1, S0144: 1, S0142: 1, S0344: 1, S0210: 1, L0761: 1, L0372: 1, L0764: 1, L0767: 1, L0768: 1, L0649: 1, L0375: 1, L0651: 1, L0784: 1, L0654: 1, L0657: 1, L0515: 1, L0658: 1, L0383: 1, L0809: 1, L0663: 1, S0006: 1, H0520: 1, H0593: 1, H0682: 1, H0684: 1, H0658: 1, H0670: 1, H0696: 1, S0027: 1, L0754: 1, L0747: 1, L0750: 1, L0591: 1, L0595: 1, L0603: 1, S0106: 1, H0668: 1, H0542: 1 and H0423: 1.				56-75, 2-
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443	HPJAO13	845355	453	139 - 612	1858				AR053: 4, AR052: 4, AR089: 3, AR033: 3, AR060: 2, AR104: 2, AR055: 1, AR061: 1 L0756: 4, L0803: 3, L0754: 3, L0731: 3, L0766: 2, L0666: 2, L0779: 2, L0755: 2, S6024: 1, S0114: 1, H0486: 1, L0021: 1, T0082: 1, L0145: 1, L0764: 1, L0363: 1, L0794: 1, L0804: 1, S0052: 1, H0555: 1, L0758: 1, L0592: 1, S0026: 1, H0136: 1 and S0460: 1.			18
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444	HHENP67	845465	454	148 - 546	1859	Gly-44 to Phe-55, Pro-57 to Ser-64, Arg-83 to Gly-90, Leu-98 to Thr-105.			AR096: 43, AR053: 36, AR039: 32, AR089: 28, AR052: 26, AR104: 19, AR060: 19, AR033: 18, AR055: 7, AR061: 5 S0360: 3, H0031: 3, H0547: 3, L0015: 2, H0583: 1, L0443: 1, H0613: 1,			110-126, 11-27

445	HLQDC55	846521	455	10 - 444	1860	Met-1 to Ser-7, Gly-16 to Ile-24, Thr-28 to Asp-38, Asp-55 to Phe-64, Ser-76 to Lys-82, Leu-116 to Glu-124.	H0586: 1, H0013: 1, S0346: 1, H0546: 1, H0551: 1, H0059: 1, H0509: 1, L0662: 1, L0803: 1, L0774: 1, L0775: 1, L0805: 1, L0657: 1, L0659: 1, L0526: 1, L0666: 1, L0664: 1, S0380: 1 and H0543: 1.				91-110
446	HTTJW49	846674	456	94 - 660	1861	Gly-49 to Thr-57, Gly-139 to Arg-144.	AR055: 12, AR061: 7, AR060: 6, AR053: 5, AR033: 4, AR089: 4, AR052: 3, AR096: 2, AR104: 2, AR039: 0 H0574: 1 and S0344: 1. AR055: 4, AR060: 3, AR033: 3, AR096: 3, AR061: 3, AR039: 2, AR089: 2, AR052: 2, AR053: 1, AR104: 1 L0769: 3, L0803: 3, L0748: 3, L0749: 3, H0574: 2, H0046: 2, H0634: 2, S0440: 2, L0794: 2, L0805: 2, L0776: 2, L0439: 2, L0754: 2, L0747: 2, L0755: 2, L0605: 2, L0593: 2, H0686: 1, S0360: 1, L0717: 1, H0069: 1, H0575: 1, H0263: 1, H0620: 1, H0024:	7q21.3- q22.1	120160, 120160, 120160, 120160, 126650, 126650, 129900, 154276, 173360, 173360, 183600, 602136, 602136, 602136, 602447	77-94	

447	HSYAD28	846772	457	98 - 442	1862	Gln-33 to Gly-42, Ser-69 to Ala-77.	1, S0388: 1, H0510: 1, H0266: 1, H0644: 1, L0455: 1, H0163: 1, H0561: 1, S0438: 1, H0695: 1, L0763: 1, L0800: 1, L0804: 1, L0774: 1, L0775: 1, L0807: 1, L0659: 1, L0783: 1, L0809: 1, L0666: 1, L0665: 1, L0438: 1, H0658: 1, H0539: 1, S0152: 1, H0522: 1, L0740: 1, L0777: 1, L0603: 1, S0276: 1 and H0542: 1.							87-111
448	HLWAR77	847144	458	32 - 997	1863	Gln-87 to Pro-104, Trp-107 to Lys-119,	AR089: 2, AR096: 2, AR053: 2, AR052: 2, AR039: 2, AR060: 1, AR055: 1, AR104: 1, AR033: 1, AR061: 1 L0766: 6, L0749: 6, L0803: 2, H0395: 1, H0556: 1, H0599: 1, H0196: 1, H0545: 1, H0551: 1, H0633: 1, L0772: 1, L0800: 1, L0794: 1, L0806: 1, L0382: 1, S0152: 1, L0751: 1, L0754: 1, L0750: 1, L0608: 1, H0542: 1 and H0543: 1.							54-85, 170-198,

449	HCE2W33	847388	459	1134 - 1820	1864	Thr-156 to Gln-163, Ser-168 to Lys-173, Glu-240 to Phe-246, Ser-285 to His-291, Tyr-297 to Gln-306, Glu-312 to Ser-320.	AR104: 1, AR060: 1, AR061: 1, AR053: 1, AR052: 1, AR055: 1 H0553: 4 and L0759: 2.				121-141, 21-45, 208-224
						His-78 to Tyr-106, Glu-115 to Asp-120, Trp-139 to Thr-146, Pro-153 to Thr-187, Pro-213 to Ser-220.	AR104: 249, AR061: 203, AR060: 179, AR033: 175, AR039: 168, AR055: 147, AR096: 122, AR089: 92, AR053: 67, AR052: 66 L0741: 18, L0766: 10, L0438: 9, H0052: 6, L0748: 6, H0622: 5, H0617: 5, L0665: 5, H0539: 5, H0542: 5, S0418: 4, H0553: 4, H0059: 4, H0494: 4, L0666: 4, H0521: 4, L0751: 4, L0750: 4, L0758: 4, L0759: 4, L0593: 4, L0595: 4, H0543: 4, H0656: 3, H0484: 3, S0420: 3, H0706: 3, H0086: 3, H0009: 3, H0050: 3, H0124: 3, H0087: 3, T0042: 3, H0509: 3, L0770: 3, L0761: 3, L0772: 3, L0771: 3, L0768: 3, L0497: 3, L0776: 3, L0659: 3, L0664: 3, L0439: 3, L0740: 3, L0591: 3, H0556: 2,				47-77

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450	HSOAC39	847431	460	77 - 679	1865	Ala-118 to Phe-124, Arg-178 to Lys-201.	H0328: 1, H0428: 1, L0142: 1, S0364: 1, H0040: 1, H0616: 1, H0551: 1, H0264: 1, H0268: 1, H0412: 1, T0041: 1, S0440: 1, S0144: 1, S0142: 1, S0210: 1, H0695: 1, L0369: 1, L0763: 1, L0769: 1, L5565: 1, L0667: 1, L0646: 1, L0643: 1, L0648: 1, L0649: 1, L0774: 1, L0775: 1, L0375: 1, L0651: 1, L0653: 1, L0658: 1, L0383: 1, L0663: 1, H0519: 1, H0658: 1, H0670: 1, H0648: 1, H0696: 1, H0134: 1, H0555: 1, H0576: 1, S3014: 1, S0032: 1, L0745: 1, L0749: 1, L0731: 1, H0445: 1, S0434: 1, L0581: 1, L0361: 1, H0668: 1, S0276: 1, L0469: 1, H0422: 1 and S0460: 1.	1-28, 151-175, 127-143
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451	HJAV01	847551	461	357 - 707	1866	Ala-28 to Thr-35.	1, L0640: 1, L0763: 1, L0642: 1, L0363: 1, L0386: 1, L0803: 1, L0774: 1, L0775: 1, L0805: 1, L0776: 1, L0659: 1, L0517: 1, L0543: 1, L0664: 1, L0665: 1, H0144: 1, H0682: 1, H0658: 1, H0670: 1, S0380: 1, S0044: 1, H0134: 1, S0404: 1, L0743: 1, L0750: 1, L0731: 1, L0757: 1, H0445: 1, S0011: 1, H0668: 1 and S0276: 1.							86-109, 40-56
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452	HWGQC67	847568	462	121 - 522	1867	Lys-53 to Asn-58.	1, H0673: 1, H0124: 1, H0087: 1, H0551: 1, H0561: 1, S0210: 1, H0529: 1, L0761: 1, L0644: 1, L0803: 1, L0774: 1, L0775: 1, L0805: 1, L0656: 1, H0519: 1, H0659: 1, H0672: 1, L0777: 1, L0698: 1 and H0677: 1. AR053: 1, AR089: 1, AR033: 1, AR061: 1, AR060: 0, AR096: 0, AR052: 0, AR055: 0, AR039: 0, AR104: 0 L0805: 3, L0659: 3, S0406: 3, L0779: 3, S0376: 2, H0013: 2, H0553: 2, L0761: 2, L0773: 2, L0662: 2, L0794: 2, L0803: 2, L0665: 2, H0539: 2, S0404: 2, L0748: 2, L0754: 2, L0731: 2, H0265: 1, S0114: 1, H0583: 1, H0650: 1, S0212: 1, S0442: 1, S0354: 1, S0408: 1, H0351: 1, H0592: 1, H0575: 1, S0474: 1, H0581: 1, H0271: 1, H0687: 1, H0622: 1, S0382: 1, S0448: 1, H0529: 1, L0640: 1, L0763: 1, L0764:					93-114, 17-35, 70- 86
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453	HFIJC17	847634	463	394 - 726	1868	Ser-35 to Arg-45.	1, L0771: 1, L0804: 1, L0776: 1, L0655: 1, L0788: 1, L0666: 1, H0666: 1, H0555: 1, L0751: 1, L0750: 1 and L0759: 1. AR052: 7, AR096: 7, AR089: 5, AR053: 4, AR060: 4, AR033: 3, AR104: 2, AR061: 2, AR055: 2, AR039: 0 H0438: 1, L0764: 1, L0626: 1, H0445: 1 and S0194: 1.					46-62, 18- 34
454	HBXCD74	847677	464	709 - 1014	1869	Pro-3 to Glu-8.	AR096: 3, AR089: 2, AR053: 1, AR104: 1, AR055: 1, AR060: 1, AR052: 1, AR061: 1, AR039: 0, AR033: 0 L0439: 11, L0751: 5, S0222: 3, L0769: 3, L0766: 3, H0617: 2, S0038: 2, L0770: 2, L0764: 2, L0794: 2, L0438: 2, L0747: 2, L0752: 2, H0445: 2, S6024: 1, S0001: 1, H0351: 1, H0586: 1, S0010: 1, H0373: 1, S0051: 1, T0010: 1, S6028: 1, H0264: 1, S0150: 1, L0768: 1, S0052: 1,					64-80

455	HPICD14	847876	465	1284 - 544	1870	Pro-44 to Trp-49, Met-58 to His-65, Pro-68 to Lys-76, Ser-153 to Asp-158, Ser-235 to Gln-246.	H0522: 1, L0741: 1, L0753: 1, L0758: 1 and H0422: 1. AR033: 5, AR096: 5, AR052: 5, AR055: 5, AR089: 4, AR053: 4, AR061: 4, AR060: 4, AR039: 2, AR104: 2 L0748: 8, L0766: 7, L0771: 5, S0422: 3, H0529: 3, H0519: 3, L0749: 3, L0756: 3, H0641: 2, L0659: 2, S0374: 2, L0438: 2, H0547: 2, L0751: 2, L0750: 2, L0758: 2, H0484: 1, S0420: 1, S0442: 1, S0358: 1, S0410: 1, S0007: 1, H0632: 1, L0483: 1, H0606: 1, H0268: 1, H0494: 1, S0150: 1, L0763: 1, L0637: 1, L0764: 1, L0768: 1, L0774: 1, L0653: 1, L0809: 1, L0666: 1, H0144: 1, H0520: 1, H0658: 1, S0328: 1, H0539: 1, S0406: 1, S0027: 1, L0744: 1, L0754: 1, L0777: 1, S0434: 1, L0592: 1, L0608: 1, L0593: 1, H0136: 1, H0543: 1 and H0422: 1.				210-235, 95-117, 184-204, 161-177, 123-139
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456	HBGNJ21	848184	466	21 - 521	1871	Glu-151 to Gln-157.	AR096: 1, AR039: 1, AR033: 1, AR060: 1, AR053: 1, AR052: 1, AR089: 1, AR055: 1, AR061: 0, AR104: 0 H0617: 3, S0282: 1, S0045: 1, H0135: 1 and S0028: 1.			88-114, 113-137, 17-42, 47- 68
457	HBGNW78	848214	467	299 - 640	1872	Gln-10 to Tyr-16, Asn-20 to Arg-25.	AR033: 1, AR104: 1, AR089: 1, AR096: 1, AR053: 1, AR060: 0, AR061: 0, AR055: 0, AR052: 0, AR039: 0 H0617: 5, S0278: 1 and S0028: 1.			49-69
458	HSDZN36	848395	468	652 - 1053	1873		AR055: 16, AR033: 14, AR060: 13, AR061: 10, AR104: 10, AR052: 8, AR089: 7, AR053: 6, AR039: 5, AR096: 5 S0414: 26, L0777: 8, L0758: 4, S0422: 3, L0731: 3, H0170: 2, S6016: 2, H0009: 2, L0471: 2, H0051: 2, S6028: 2, H0266: 2, L0653: 2, L0809: 2, L0666: 2, L0663: 2, H0689: 2, L0745: 2, L0750: 2, S0412: 2, S0358: 1, S0360: 1,			114-132, 65-82, 39- 55, 14-30

459	HFPCS09	848480	469	9 - 401	1874				S0408: 1, H0728: 1, L0717: 1, H0351: 1, S0222: 1, H0455: 1, H0587: 1, H0574: 1, H0052: 1, H0046: 1, H0615: 1, H0428: 1, H0553: 1, S0036: 1, H0090: 1, H0591: 1, H0623: 1, S0440: 1, L0637: 1, L0771: 1, L0794: 1, L0766: 1, L0388: 1, L0803: 1, L0774: 1, L0805: 1, L0607: 1, L0659: 1, L0636: 1, L0647: 1, L0790: 1, L0664: 1, L0665: 1, H0519: 1, H0658: 1, S0378: 1, H0518: 1, S0152: 1, H0521: 1, S3012: 1, L0779: 1, L0752: 1, L0759: 1, S0434: 1 and H0653: 1, AR039: 74, AR096: 66, AR053: 44, AR055: 38, AR052: 38, AR033: 34, AR104: 33, AR089: 27, AR060: 21, AR061: 19				32-48, 98-117, 8-24
460	HAIBB95	848610	470	301 - 795	1875	Glu-9 to Leu-18, Leu-22 to Pro-27.			AR039: 16, AR055: 12, AR104: 8, AR053: 8, AR033: 8, AR060: 7, AR052: 7, AR096: 6, AR089: 6, AR061: 6				88-107

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461	HHEFI08	848769	471	109 - 417	1876	Gly-82 to Tyr-87.			AR096: 1, AR089: 1, AR060: 1, AR061: 1, AR033: 0, AR052: 0, AR055: 0, AR039: 0, AR053: 0, AR104: 0 H0561: 1, L0748: 1 and H0542: 1.				61-79
462	HE8OM63	848773	472	10 - 432	1877	Ala-57 to Trp-62.			AR089: 1, AR033: 0, AR055: 0, AR039: 0, AR053: 0, AR060: 0, AR096: 0, AR061: 0, AR052: 0, AR104: 0 H0013: 1 and H0561: 1.				110-128
463	HAJAG88	848785	473	158 - 631	1878	Arg-26 to Cys-31.			AR096: 6, AR089: 4, AR039: 3, AR053: 3, AR033: 3, AR052: 3, AR060: 2, AR104: 2,				2-24, 116- 139, 32- 49, 93- 111, 62-78

464	HAIJCL92	849547	474	33 - 2522	1879	Lys-136 to Glu-143, Lys-184 to Ser-189, Ser-195 to Asn-205, Asn-232 to Thr-240, Arg-276 to Phe-285, Glu-406 to Glu-414, Thr-476 to Tyr-482, Tyr-496 to Ala-501, Pro-588 to Glu-593, Pro-612 to Leu-618, Gly-623 to Gln-630, Thr-670 to Ser-681, Lys-701 to Glu-715, Lys-759 to Glu-769, Met-773 to Asn-797, Ser-809 to Asp-823.	AR055: 2, AR061: 1 L0527: 2, H0657: 1, H0341: 1, S0222: 1, H0438: 1, T0048: 1, S0049: 1, S0250: 1, S0036: 1, H0087: 1, H0561: 1, L0369: 1, L0388: 1, L0518: 1, H0520: 1, H0519: 1, H0435: 1, L0366: 1 and L0697: 1.				739-756, 89-105, 249-265, 166-182, 511-527
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465	HHAMA15	849576	475	62 - 646	1880			AR096: 2, AR104: 1, AR055: 1, AR033: 1, AR061: 1, AR060: 1, AR089: 1, AR039: 0, AR052: 0, AR053: 0 S0358: 6, L0803: 5, H0510: 2, S0438: 2, S0422: 2, L0769: 2, L0805: 2, L0527: 2, L0789: 2, L0748: 2, L0747: 2, L0750: 2, L0615: 1, L0460: 1, H0484:						



								1, S0444: 1, S0222: 1, H0486: 1, T0048: 1, H0041: 1, H0024: 1, H0646: 1, L0800: 1, L0662: 1, L0629: 1, L0518: 1, L0809: 1, L0791: 1, S0374: 1, H0627: 1, L0756: 1, L0755: 1, L0731: 1 and L0759: 1.				
466	HPIDE45	849610	476	550 - 1353	1881	Ala-5 to Asn-28, Pro-47 to His-52, Tyr-83 to Arg-90.		AR096: 3, AR089: 3, AR053: 3, AR060: 2, AR033: 2, AR104: 2, AR055: 2, AR039: 1, AR052: 1, AR061: 1 H0436: 3, L0605: 3, H0551: 2, L0662: 2, S0028: 2, L0748: 2, L0754: 2, L0759: 2, S0134: 1, S0001: 1, S0358: 1, S0360: 1, H0550: 1, H0404: 1, H0156: 1, H0041: 1, H0050: 1, H0031: 1, H0591: 1, S0386: 1, L0521: 1, L0803: 1, H0547: 1, H0682: 1, H0658: 1, S0152: 1, S0027: 1, L0745: 1, H0445: 1, S0196: 1 and H0423: 1.				245-261
467	HPMJG77	849645	477	179 - 1405	1882	Met-1 to Ser-8, Ser-31 to Asp-40, Asn-44 to Val-51,		AR033: 7, AR060: 7, AR052: 7, AR055: 6, AR096: 5, AR089: 5,				298-314, 69-85

Asp-87 to Ser-95, Pro-115 to Ser-125, Phe-131 to Phe-138, Leu-166 to Gly-171, His-197 to Gln-206, Leu-217 to Lys-224, Thr-359 to Glu-370, Met-373 to Tyr-378, Lys-403 to Asn-409.	AR053: 5, AR039: 4, AR061: 3, AR104: 2, L0803: 15, L0766: 5, S0208: 4, L0758: 4, S0222: 3, S0003: 3, H0529: 3, L0770: 3, L0666: 3, L0756: 3, H0170: 2, H0171: 2, S0356: 2, H0637: 2, S0045: 2, L0763: 2, L0662: 2, L0794: 2, L0774: 2, L0805: 2, L0809: 2, H0436: 2, L0747: 2, L0750: 2, L0755: 2, H0624: 1, S0418: 1, H0741: 1, S0132: 1, H0331: 1, H0013: 1, H0318: 1, S0049: 1, H0052: 1, H0596: 1, H0457: 1, H0051: 1, H0510: 1, S6028: 1, S0214: 1, H0428: 1, H0553: 1, H0644: 1, H0032: 1, H0090: 1, H0591: 1, H0616: 1, H0413: 1, H0494: 1, L0475: 1, S0438: 1, S0344: 1, L0796: 1, L0637: 1, L0646: 1, L0800: 1, L0648: 1, L0804: 1, L0806: 1, L0776: 1, L0655: 1, L0807: 1, L0527: 1, L0659: 1, L0790: 1, L0791: 1, L0664: 1, H0725: 1, S0148: 1, H0520:
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468	HBCCG79	850225	478	184 - 723	1883	Pro-3 to Thr-9, Leu-39 to Val-44, Ile-121 to Tyr-128, Ser-149 to Val-156.	1, H0519: 1, H0593: 1, S0330: 1, H0521: 1, H0522: 1, S0406: 1, S0392: 1, S3014: 1, S0028: 1, S0206: 1, L0740: 1, L0754: 1, L0745: 1, L0779: 1, L0777: 1, L0752: 1, L0731: 1, S0436: 1, L0596: 1, S0194: 1 and H0423: 1.						130-146
							AR052: 20, AR096: 20, AR089: 15, AR053: 14, AR060: 13, AR033: 10, AR055: 9, AR039: 8, AR104: 5, AR061: 4 S0126: 6, L0766: 5, S0046: 3, S0152: 3, L0748: 3, S0354: 2, S0376: 2, S0045: 2, H0013: 2, H0050: 2, H0634: 2, H0547: 2, H0521: 2, S0028: 2, L0747: 2, L0731: 2, L0596: 2, S0040: 1, H0657: 1, H0381: 1, S0356: 1, S0360: 1, H0393: 1, L0717: 1, H0370: 1, H0599: 1, H0318: 1, H0581: 1, H0123: 1, L0471: 1, H0024: 1, H0014: 1, H0266: 1, S0003: 1, S0022: 1, H0031: 1, H0591: 1, H0038: 1, H0551: 1, T0042: 1,						

									H0561: 1, S0144: 1, H0529: 1, L0646: 1, L0794: 1, L0774: 1, L0776: 1, L0659: 1, L0666: 1, L0664: 1, H0435: 1, S0378: 1, H0555: 1, S0027: 1, S0206: 1, L0750: 1, L0759: 1, H0653: 1 and H0543: 1.				
469	HFIHQ53	850238	479	19 - 651	1884				Thr-43 to Leu-48, Ala-74 to Ser-85, Ser-122 to Asn-130, Gln-133 to Gly-139.				95-111
470	HUVFU38	850252	480	367 - 960	1885				Ala-47 to Asp-53, Glu-105 to Arg-112, Tyr-150 to Leu-157.				159-179
471	HUDBK83	850353	481	3238 - 1439	1886				Gly-38 to Asp-47, Thr-208 to Phe-221,				234-251, 18-34,

				Glu-273 to Tyr-279, Thr-286 to Arg-291, Ala-341 to Asn-346, Ser-365 to Leu-370, Asp-519 to Thr-526, Pro-563 to Gly-568.	AR053: 3, AR060: 3, AR061: 3, AR055: 3, AR039: 2, AR104: 2 H0253: 10, H0617: 8, H0559: 7, H0265: 6, H0618: 5, H0551: 5, S0434: 5, H0052: 4, H0620: 4, L0794: 4, H0556: 3, H0135: 3, H0087: 3, L0659: 3, L0666: 3, L0663: 3, L0438: 3, H0522: 3, L0749: 3, H0171: 2, H0657: 2, H0341: 2, H0484: 2, H0255: 2, S0356: 2, S0360: 2, S0046: 2, H0550: 2, H0251: 2, H0051: 2, H0188: 2, H0424: 2, H0031: 2, H0040: 2, H0494: 2, S0344: 2, L0769: 2, L0662: 2, L0774: 2, L0783: 2, L0809: 2, H0696: 2, L0439: 2, L0751: 2, L0779: 2, L0731: 2, L0759: 2, L0605: 2, L0361: 2, L0601: 2, H0624: 1, H0159: 1, S6024: 1, H0295: 1, H0656: 1, S0420: 1, S0442: 1, S0408: 1, H0637: 1, L0717: 1, H0351: 1, S0222: 1, H0441: 1, H0370: 1, H0592: 1, H0586: 1, H0497: 1,			157-173, 443-459
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H0643: 1, H0257: 1, H0013: 1, H0635: 1, H0156: 1, H0042: 1, H0706: 1, H0318: 1, H0581: 1, H0194: 1, H0327: 1, H0046: 1, H0009: 1, H0178: 1, H0565: 1; H0012: 1, H0023: 1, H0201: 1, S0051: 1, H0083: 1, S6028: 1, H0266: 1, H0271: 1, H0428: 1, H0604: 1, H0417: 1, H0181: 1, H0708: 1, H0163: 1, H0038: 1, H0634: 1, H0063: 1, H0264: 1, H0412: 1, S0038: 1, L0351: 1, H0359: 1, S0150: 1, H0646: 1, H0538: 1, S0002: 1, S0426: 1, L0640: 1, L0772: 1, L0372: 1, L0641: 1, L0643: 1, L0764: 1, L0767: 1, L0768: 1, L0766: 1, L0375: 1, L0378: 1, L0806: 1, L0652: 1, L0656: 1, L0636: 1, L0790: 1, L0664: 1, H0144: 1, S0374: 1, H0520: 1, H0547: 1, H0519: 1, H0593: 1, H0682: 1, H0651: 1, S0328: 1, H0539: 1, S0380: 1, S0332: 1, S0406: 1, S3014: 1, S0027: 1, L0754: 1,
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472	HDPSE01	850581	482	38 - 391	1887			L0750: 1, L0755: 1, L0757: 1, L0758: 1, S0031: 1, S0436: 1, L0593: 1, H0667: 1, H0217: 1, H0423: 1, H0422: 1 and S0042: 1.				49-76, 1- 17, 30-46, 94-110
								AR052: 5, AR039: 4, AR053: 4, AR033: 3, AR096: 3, AR060: 3, AR055: 3, AR089: 2, AR104: 2, AR061: 1 H0521: 7, L0519: 4, L0598: 3, L0794: 3, L0779: 3, L0755: 3, H0542: 3, H0637: 2, H0251: 2, L0662: 2, L0803: 2, H0436: 2, L0743: 2, L0749: 2, L0752: 2, L0599: 2, H0543: 2, H0661: 1, H0305: 1, S0358: 1, S0360: 1, S0278: 1, H0486: 1, H0427: 1, T0082: 1, H0309: 1, H0014: 1, H0271: 1, H0561: 1, S0144: 1, S0344: 1, L0631: 1, L0800: 1, L0804: 1, L0651: 1, L0806: 1, L0653: 1, L0776: 1, L0527: 1, L0659: 1, L0666: 1, H0144: 1, H0672: 1, H0696: 1, H0478: 1, L0750: 1, L0756: 1, L0758: 1, S0031: 1, H0444:				

473	HKAPB61	850629	483	45 - 572	1888	Pro-16 to Thr-25, Thr-47 to Leu-54, Tyr-62 to Gln-77, Pro-112 to Tyr-131.	1, H0445: 1, H0595: 1, L0592: 1, S0192: 1 and S0242: 1. AR033: 12, AR104: 12, AR060: 9, AR089: 8, AR055: 7, AR061: 7, AR053: 6, AR052: 6, AR039: 4, AR096: 4 H0624: 2, H0014: 2, H0622: 2, H0038: 2, H0616: 2, H0661: 1, T0082: 1, H0494: 1, H0538: 1, H0144: 1, S0126: 1, L0743: 1, L0754: 1 and L0758: 1.				131-147
474	HMEGF05	850930	484	427 - 831	1889	Leu-32 to Val-37.	AR055: 6, AR096: 6, AR052: 5, AR060: 4, AR089: 4, AR033: 3, AR039: 3, AR061: 3, AR053: 2, AR104: 1 H0457: 4, S0045: 1, H0586: 1, H0581: 1, H0266: 1, H0628: 1, L0659: 1 and H0519: 1.				66-90, 1- 19, 36-54, 97-113
475	HPTVF17	850963	485	230 - 691	1890	Glu-8 to Thr-13, Glu-18 to Pro-25, Ser-48 to Val-55.	AR052: 10, AR053: 10, AR055: 9, AR033: 6, AR061: 5, AR060: 5, AR039: 5, AR089: 5, AR104: 4, AR096: 4 S0420: 1, H0424: 1,				93-111



476	HDLBF57	851303	486	19 - 561	1891	Glu-40 to Gln-48.	S0144: 1 and L0595: 1. AR033: 8, AR053: 7, AR089: 6, AR052: 6, AR055: 5, AR039: 5, AR060: 4, AR096: 4, AR061: 3, AR104: 3 L0157: 4, H0038: 4, H0013: 3, L0766: 3, S0354: 2, H0545: 2, L0794: 2, L0783: 2, L0665: 2, H0144: 2, L0756: 2, L0777: 2, L0593: 2, L0595: 2, H0665: 2, H0656: 1, H0484: 1, H0254: 1, H0125: 1, S0356: 1, S6026: 1, H0485: 1, H0618: 1, H0318: 1, S0388: 1, H0266: 1, H0039: 1, H0673: 1, H0412: 1, L0770: 1, L0769: 1, L0761: 1, L0803: 1, L0653: 1, L0382: 1, L0792: 1, S0052: 1, H0690: 1, H0658: 1, H0539: 1, S3014: 1, S0028: 1, L0779: 1, L0758: 1 and L0759: 1.			133-165, 1-22, 57- 75, 92-108
477	HE8QT62	851311	487	1129 - 1530	1892	Ser-31 to Gln-44, Ser-91 to Gln-96.	AR052: 11, AR055: 9, AR061: 7, AR053: 6, AR033: 6, AR096: 6, AR060: 6, AR089: 5,			56-74

478	HE9FI33	851342	488	45 - 416	1893	Arg-65 to His-70.	AR104: 3, AR039: 2 H0013: 3, H0090: 2, S0002: 2, H0144: 2, H0161: 1, S0134: 1, S0418: 1, S0360: 1, H0580: 1, S0045: 1, S0222: 1, H0244: 1, H0575: 1, H0039: 1, H0032: 1, H0616: 1, H0063: 1, S0142: 1, H0529: 1, L0372: 1, L0803: 1, L0790: 1, L0791: 1, H0521: 1, L0593: 1, S0242: 1, H0543: 1 and H0423: 1.				3-27, 93- 118, 32- 49, 73-89
479	HOUBJ40	851343	489	48 - 506	1894	Lys-42 to Gly-48, Asp-71 to Pro-76, Tyr-84 to Met-91.	AR055: 7, AR052: 4, AR053: 4, AR060: 4, AR061: 4, AR033: 3, AR089: 3, AR096: 3, AR104: 3, AR039: 2 L0749: 2, H0144: 1 and L0748: 1. AR055: 9, AR052: 7, AR060: 6, AR053: 6, AR033: 5, AR061: 5, AR096: 5, AR089: 5, AR039: 3, AR104: 3 L0666: 2, L0779: 2, S0040: 1, S0442: 1, H0634: 1, L0643: 1, L0804: 1, L0775: 1, L0809: 1, H0144:				101-117

480	HHEVC06	851355	490	566 - 1060	1895	Pro-58 to His-69, Glu-132 to Asn-138.	1, L0777: 1 and L0752: 1. AR096: 9, AR089: 7, AR052: 6, AR053: 6, AR039: 4, AR060: 4, AR104: 4, AR033: 2, AR055: 2, AR061: 1 L0526: 1, H0144: 1, L0748: 1 and H0543: 1.			7-23, 106- 122, 139- 155
481	HE8FS36	851478	491	118 - 456	1896		AR039: 7, AR055: 7, AR096: 6, AR033: 6, AR052: 5, AR060: 5, AR089: 5, AR053: 5, AR061: 3, AR104: 3 L0766: 2, L0759: 2, H0580: 1, H0611: 1, H0013: 1, S0474: 1, H0057: 1, H0268: 1, H0413: 1, L0655: 1, L0748: 1, L0756: 1, H0595: 1 and L0594: 1.			40-68, 1- 24, 76-92
482	HE2SS47	851581	492	610 - 942	1897		AR089: 1, AR053: 1, AR060: 0, AR061: 0, AR055: 0, AR096: 0, AR039: 0, AR033: 0, AR052: 0 S0001: 2, H0624: 1, H0255: 1, S0428: 1, S0152: 1, S0028: 1, S0031: 1 and S0260: 1.			71-108, 68-84
483	HTELD06	851722	493	243 -	1898	Tyr-25 to Val-30.	AR089: 12, AR033: 12,			156-172

484	HDPJH06	851787	494	551 - 916	1899				AR052: 11, AR060: 10, AR096: 8, AR053: 7, AR104: 5, AR039: 5, AR061: 4, AR055: 3 H0616: 2, L0665: 2, L0779: 2, H0624: 1, H0156: 1, L0766: 1, L0803: 1, L0517: 1, L0367: 1, L0792: 1, L0663: 1, L0748: 1, L0754: 1 and L0758: 1.				
						Thr-2 to Val-8, Leu-43 to Glu-48, Lys-53 to Gln-61.			AR096: 5, AR052: 5, AR039: 5, AR053: 4, AR089: 3, AR033: 3, AR060: 3, AR104: 3, AR055: 2, AR061: 1 S0003: 4, L0756: 4, H0521: 3, H0171: 2, H0014: 2, S0214: 2, L0748: 2, L0747: 2, L0755: 2, H0581: 1, H0263: 1, L0471: 1, H0266: 1, H0328: 1, H0615: 1, H0553: 1, H0032: 1, H0591: 1, H0038: 1, H0100: 1, H0494: 1, S0422: 1, S0002: 1, L0773: 1, L0766: 1, L0375: 1, L0776: 1, L0527: 1, L0659: 1, H0520: 1, H0478: 1, L0750: 1, L0779: 1, L0759: 1, S0031: 1, L0591: 1 and S0026: 1.				93-109

485	HDTKS69	851859	495	35 - 349	1900		AR033: 10, AR061: 8, AR060: 6, AR089: 4, AR055: 1, AR104: 1, AR096: 1, AR052: 0, AR053: 0, AR039: 0 L0439: 3, H0052: 2, S0628: 2, L0792: 2, H0486: 1, S0346: 1, L0471: 1, S0016: 1, L0776: 1, L0659: 1, L0438: 1 and H0539: 1.			2-30, 70- 89, 41-58
486	HE6CH89	852568	496	132 - 527	1901	Lys-78 to Glu-88, Ser-93 to Glu-102, Ser-109 to Cys-117, Arg-126 to Gln-132.	AR052: 4, AR060: 2, AR033: 2, AR089: 1, AR053: 1, AR096: 1, AR055: 1, AR104: 1, AR061: 1, AR039: 0 L0748: 7, L0659: 3, L0747: 3, S0212: 2, S0010: 2, H0132: 2, L0764: 2, L0744: 2, L0752: 2, L0759: 2, S0424: 2, H0170: 1, S0116: 1, S0358: 1, S6016: 1, H0587: 1, H0575: 1, H0421: 1, H0041: 1, H0050: 1, L0471: 1, H0375: 1, H0615: 1, H0039: 1, H0674: 1, H0100: 1, H0625: 1, H0654: 1, H0529: 1, L0364: 1, L0636: 1, L0526: 1, L0783: 1, L0532: 1, L0663: 1, L0665: 1, H0724: 1,			57-79, 30- 49

487	HDPGS20	852676	497	18 - 833	1902	Pro-36 to Gln-42, Cys-73 to Ser-86.	H0658: 1, H0660: 1, H0521: 1, H0522: 1, S0406: 1 and L0740: 1. AR089: 1, AR033: 1, AR053: 1, AR055: 1, AR060: 1, AR096: 1, AR061: 0, AR039: 0, AR104: 0, AR052: 0 H0521: 7, S0022: 6, L0770: 6, L0769: 6, L0758: 5, S0051: 4, L0747: 4, L0756: 4, H0638: 3, H0124: 3, L0794: 3, L0805: 3, S0278: 2, S0222: 2, H0052: 2, H0327: 2, H0100: 2, L0789: 2, L0438: 2, L0439: 2, L0751: 2, L0777: 2, L0591: 2, S0282: 1, S0356: 1, L0717: 1, H0441: 1, H0587: 1, L0163: 1, H0051: 1, S0048: 1, H0594: 1, H0328: 1, L0455: 1, S0036: 1, S0038: 1, S0344: 1, L0761: 1, L0775: 1, L0375: 1, L0776: 1, L0659: 1, L0809: 1, L0647: 1, H0522: 1, L0750: 1, L0753: 1, H0445: 1 and L0366: 1. AR055: 6, AR060: 4,			210-237, 41-73, 84- 110, 238- 257
488	HWBBZ12	852760	498	3509 -	1903	Ile-37 to Phe-45,			79-97	

						Leu-109 to Glu-118, Ser-169 to Ser-178.	AR096: 4, AR052: 3, AR061: 2, AR053: 2, AR104: 1, AR033: 1, AR089: 0, AR039: 0 L0766: 9, L0794: 6, L0439: 6, L0731: 5, L0779: 4, L0717: 3, H0622: 2, S0422: 2, L0740: 2, L0756: 2, L0595: 2, H0402: 1, S0420: 1, S0444: 1, H0580: 1, H0208: 1, S0278: 1, H0261: 1, S0222: 1, H0497: 1, H0574: 1, L0471: 1, H0641: 1, L0646: 1, L0764: 1, L0773: 1, L0803: 1, L0804: 1, L0526: 1, L0783: 1, L0791: 1, L0664: 1, L0665: 1, H0520: 1, H0521: 1, H0522: 1, H0696: 1, H0436: 1, L0777: 1, L0755: 1, L0759: 1, H0595: 1, L0604: 1 and H0422: 1.				
489	HDPBI36	852845	499	59 - 607	1904	Lys-57 to Lys-65, Gln-72 to Glu-81, Lys-88 to Lys-93, Tyr-147 to Glu-156.	AR053: 2, AR039: 2, AR052: 1, AR060: 1, AR089: 1, AR096: 1, AR061: 1, AR055: 0, AR033: 0, AR104: 0 L0731: 14, L0756: 9, H0521: 6, L0758: 6, L0759: 6, H0556: 5, L0659: 5,				120-148, 100-121, 158-175

		L0783: 5, H0659: 4, S0360: 3, H0413: 3, L0598: 3, L0770: 3, L0791: 3, L0665: 3, S0126: 3, S0378: 3, L0755: 3, H0624: 2, H0171: 2, S0358: 2, H0580: 2, H0645: 2, T0060: 2, H0156: 2, H0042: 2, H0263: 2, H0046: 2, S0003: 2, H0591: 2, H0616: 2, H0641: 2, H0646: 2, S0344: 2, L0369: 2, L0662: 2, L0776: 2, L0663: 2, S0027: 2, L0779: 2, H0667: 2, S0192: 2, H0543: 2, H0422: 2, H0170: 1, H0713: 1, S0114: 1, S0134: 1, H0583: 1, H0341: 1, S0212: 1, H0661: 1, S0418: 1, S0444: 1, S0408: 1, S0468: 1, S0045: 1, S0476: 1, H0639: 1, L0717: 1, H0411: 1, H0441: 1, H0370: 1, H0331: 1, H0574: 1, H0075: 1, H0581: 1, H0052: 1, H0123: 1, S0050: 1, H0014: 1, T0010: 1, H0266: 1, S0250: 1, H0644: 1, L0142: 1, H0628: 1, H0617: 1, H0032: 1, H0383: 1, H0169: 1, S0036: 1,		
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490	HMAEP64	852960	500	167 - 952	1905	Glu-167 to Met-172, Pro-208 to Arg-218, Arg-243 to Ser-253, Ser-255 to Gly-262.	H0551: 1, T0067: 1, H0380: 1, H0264: 1, H0412: 1, H0625: 1, S0142: 1, L0762: 1, L0763: 1, L0641: 1, L0773: 1, L0768: 1, L0766: 1, L0803: 1, L0650: 1, L0523: 1, L0806: 1, L0653: 1, L0526: 1, L0519: 1, L0647: 1, L0789: 1, L0790: 1, L0666: 1, L0664: 1, S0374: 1, L0438: 1, H0519: 1, H0689: 1, H0690: 1, H0670: 1, H0666: 1, L0602: 1, S0152: 1, H0696: 1, S0146: 1, H0555: 1, H0576: 1, S0037: 1, S3014: 1, L0744: 1, L0439: 1, L0740: 1, L0754: 1, L0750: 1, L0786: 1, L0752: 1, L0757: 1, S0436: 1, L0591: 1, S0026: 1, H0136: 1, S0242: 1, S0276: 1, S0196: 1, H0423: 1 and H0293: 1. AR061: 9, AR089: 5, AR060: 5, AR033: 5, AR055: 5, AR052: 4, AR096: 4, AR039: 3, AR053: 2, AR104: 2 S0278: 3, H0641: 3, S0142: 3, H0521: 3, H0271:				48-74, 218-241, 91-110, 173-191, 146-162
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491	HTYSK68	852980	501	38 - 454	1906	Lys-2 to Glu-21, Lys-34 to Ser-42, Ile-118 to Pro-123.	2, L0770: 2, L0794: 2, L0748: 2, L0777: 2, L0599: 2, H0583: 1, H0650: 1, H0657: 1, H0656: 1, H0663: 1, H0638: 1, S0358: 1, S0376: 1, H0545: 1, S0388: 1, H0594: 1, S0144: 1, S0344: 1, L0763: 1, L0646: 1, L0648: 1, L0767: 1, L0766: 1, L0650: 1, L0775: 1, L0787: 1, L0664: 1, S0216: 1, H0576: 1, H0727: 1, L0756: 1, L0757: 1, S0260: 1 and S0436: 1.				97-113
492	HDAAD50	852987	502	73 -	1907	Ala-25 to Gly-32.	AR033: 2, AR104: 2, AR055: 2, AR039: 2, AR060: 1, AR052: 1, AR061: 1, AR089: 1, AR053: 1, AR096: 0 L0663: 2, L0439: 2, L0731: 2, H0663: 1, H0497: 1, H0486: 1, H0124: 1, S0036: 1, H0116: 1, H0623: 1, L0633: 1, L0783: 1, L0438: 1, H0547: 1, H0670: 1, S0404: 1, L0748: 1, L0747: 1, L0485: 1, H0667: 1 and H0422: 1.				154-171,

493	HNTNC03	853174	503	28 - 408	1908	1335	<p>AR089: 5, AR033: 5, AR053: 4, AR039: 3, AR060: 3, AR061: 2, AR104: 2, AR055: 2 L0439: 9, L0766: 7, H0251: 5, L0740: 5, L0803: 4, L0794: 3, L0665: 3, H0445: 3, H0156: 2, L0764: 2, L0655: 2, L0518: 2, L0809: 2, L0754: 2, L0747: 2, L0756: 2, L0777: 2, L0759: 2, L0362: 2, S0424: 2, H0171: 1, H0638: 1, S0360: 1, H0580: 1, S0046: 1, H0351: 1, S6014: 1, H0586: 1, H0497: 1, H0574: 1, L0021: 1, S0010: 1, H0596: 1, S0036: 1, H0090: 1, H0591: 1, H0509: 1, L0662: 1, L0768: 1, L0650: 1, L0775: 1, L0806: 1, L0659: 1, H0144: 1, H0702: 1, S0374: 1, H0435: 1, H0648: 1, H0672: 1, H0521: 1, L0752: 1, L0758: 1, S0260: 1, H0667: 1, H0423: 1 and L0465: 1.</p>	<p>AR089: 5, AR033: 5, AR053: 4, AR039: 3, AR060: 3, AR061: 2, AR104: 2, AR055: 2 L0439: 9, L0766: 7, H0251: 5, L0740: 5, L0803: 4, L0794: 3, L0665: 3, H0445: 3, H0156: 2, L0764: 2, L0655: 2, L0518: 2, L0809: 2, L0754: 2, L0747: 2, L0756: 2, L0777: 2, L0759: 2, L0362: 2, S0424: 2, H0171: 1, H0638: 1, S0360: 1, H0580: 1, S0046: 1, H0351: 1, S6014: 1, H0586: 1, H0497: 1, H0574: 1, L0021: 1, S0010: 1, H0596: 1, S0036: 1, H0090: 1, H0591: 1, H0509: 1, L0662: 1, L0768: 1, L0650: 1, L0775: 1, L0806: 1, L0659: 1, H0144: 1, H0702: 1, S0374: 1, H0435: 1, H0648: 1, H0672: 1, H0521: 1, L0752: 1, L0758: 1, S0260: 1, H0667: 1, H0423: 1 and L0465: 1.</p>				6-22
493	HNTNC03	853174	503	28 - 408	1908	1335	<p>Typ-22 to Arg-30, Lys-120 to Glu-127.</p>	<p>AR096: 8, AR039: 6, AR089: 6, AR104: 5, AR060: 4, AR033: 3,</p>				93-121, 56-73, 36- 52

494	HCFNG65	853186	504	42 - 908	1909			AR053: 3, AR052: 3, AR055: 2, AR061: 1 L0748: 4, S0358: 2, L0754: 2, L0756: 2, L0758: 2, H0222: 1, S0212: 1, H0580: 1, H0351: 1, T0039: 1, H0590: 1, H0318: 1, T0071: 1, H0015: 1, S6028: 1, S0036: 1, T0069: 1, H0130: 1, H0646: 1, L0646: 1, L0773: 1, L0662: 1, L0766: 1, L0803: 1, L0666: 1, L0665: 1, H0520: 1, H0547: 1, S0136: 1, H0521: 1, H0696: 1, S0028: 1, L0743: 1, L0745: 1, L0750: 1, L0777: 1, L0759: 1, S0434: 1 and L0596: 1.			56-73, 225-241
								AR039: 2, AR096: 1, AR089: 1, AR104: 1, AR033: 1, AR052: 0, AR061: 0, AR060: 0, AR053: 0, AR055: 0 L0748: 12, L0766: 11, L0439: 8, L0803: 7, S0136: 6, L0758: 4, L0438: 3, L0751: 3, L0749: 3, H0624: 2, H0318: 2, H0014: 2, H0553: 2, S0422: 2, L0794: 2, L0663: 2, H0144: 2,			

495	HLMMI85	853213	505	787 - 311	1910	Asp-22 to Gln-30, Lys-80 to Gly-91.	H0555: 2, S3014: 2, L0744: 2, L0747: 2, L0485: 2, H0423: 2, H0171: 1, H0657: 1, S0358: 1, H0637: 1, S0050: 1, H0028: 1, H0412: 1, L0351: 1, L0475: 1, H0633: 1, L0662: 1, L0655: 1, L0659: 1, L0518: 1, L0793: 1, L0666: 1, L0664: 1, S0328: 1, S0380: 1, S0350: 1, H0521: 1, H0704: 1, L0743: 1, L0759: 1 and H0668: 1.				138-155, 119-135
496	HBGMZ39	853966	506	87 - 590	1911	Arg-17 to Phe-28, Asp-35 to Asp-43, Gly-53 to Ala-60, Gln-127 to Trp-134, Val-156 to Lys-165.	AR055: 9, AR052: 6, AR096: 6, AR060: 6, AR061: 6, AR033: 5, AR089: 4, AR053: 4, AR104: 3, AR039: 3 H0483: 1, H0255: 1, H0600: 1, H0310: 1, L0766: 1, H0436: 1 and H0543: 1. AR039: 21, AR033: 18, AR089: 16, AR052: 14, AR055: 14, AR053: 13, AR096: 11, AR060: 10, AR104: 10, AR061: 10 H0617: 9, L0763: 6, L0754: 2, H0483: 1, L0789: 1 and L0743: 1.				90-107

497	HHEIA70	854202	507	298 - 831	1912	Asp-9 to Ser-18, Ala-27 to Asn-34, Val-63 to Leu-69, Thr-91 to Thr-103, Lys-143 to Asn-148, Thr-160 to Ile-173.	AR039: 39, AR053: 29, AR096: 27, AR052: 25, AR033: 20, AR104: 16, AR089: 10, AR060: 9, AR055: 8, AR061: 5 L0754: 6, S0422: 5, H0547: 5, L0471: 4, L0750: 4, L0362: 4, S0360: 3, H0318: 3, H0581: 3, S0003: 3, H0646: 3, L0740: 3, L0758: 3, H0542: 3, H0265: 2, H0556: 2, H0341: 2, H0497: 2, S0628: 2, H0090: 2, H0591: 2, H0494: 2, L0770: 2, L0655: 2, L0663: 2, S0428: 2, H0144: 2, H0659: 2, H0658: 2, H0672: 2, H0521: 2, L0439: 2, L0777: 2, L0752: 2, L0755: 2, L0731: 2, L0599: 2, L0608: 2, H0422: 2, H0686: 1, S0040: 1, S6024: 1, H0661: 1, H0663: 1, H0638: 1, S0420: 1, S0354: 1, S0358: 1, S0408: 1, S0476: 1, L0717: 1, H0261: 1, H0549: 1, H0455: 1, H0586: 1, L0586: 1, H0635: 1, S0010: 1, H0569: 1, H0620: 1, H0350: 1, H0201: 1,				100-120
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498	HNTNA78	854267	508	179 - 538	1913	Asn-83 to Lys-88, Ala-113 to Glu-119.	S0051: 1, H0179: 1, H0271: 1, S0214: 1, H0644: 1, H0628: 1, H0616: 1, H0264: 1, S0352: 1, S0440: 1, H0641: 1, S0344: 1, H0529: 1, L0520: 1, L0763: 1, L0769: 1, L0667: 1, L0772: 1, L0373: 1, L0646: 1, L0521: 1, L0768: 1, L0649: 1, L0775: 1, L0806: 1, L0652: 1, L0807: 1, L0657: 1, L0659: 1, L0647: 1, L0792: 1, S0053: 1, H0702: 1, S0122: 1, H0648: 1, H0539: 1, S0152: 1, H0522: 1, H0696: 1, S0406: 1, H0626: 1, L0751: 1, L0747: 1, L0756: 1, L0779: 1, L0759: 1, S0031: 1, S0260: 1, H0445: 1, L0592: 1, L0601: 1, H0423: 1, H0506: 1 and H0352: 1.				51-69, 96- 112
							AR039: 5, AR096: 3, AR033: 3, AR053: 3, AR060: 3, AR089: 3, AR104: 3, AR055: 2, AR052: 2, AR061: 1 H0351: 11, L0439: 5, H0090: 3, H0616: 3, L0803: 3, L0777: 3, S0222: 2,				

499	HOVAN91	854277	509	288 - 605	1914	Pro-57 to Trp-62.	H0013: 2, H0318: 2, H0032: 2, L0794: 2, L0766: 2, L0806: 2, L0659: 2, L0565: 2, H0436: 2, L0740: 2, H0170: 1, H0341: 1, S0001: 1, H0671: 1, H0663: 1, H0675: 1, H0550: 1, H0486: 1, H0590: 1, H0196: 1, H0596: 1, N0006: 1, H0569: 1, L0471: 1, S0003: 1, H0428: 1, H0031: 1, H0211: 1, H0591: 1, H0551: 1, H0560: 1, H0652: 1, L0638: 1, L0646: 1, L0662: 1, L0804: 1, L0650: 1, L0776: 1, L0655: 1, L0606: 1, L0636: 1, L0809: 1, L0792: 1, L0666: 1, S0148: 1, L0438: 1, H0520: 1, H0435: 1, H0659: 1, S0406: 1, S0028: 1, L0750: 1, L0779: 1, L0752: 1, L0755: 1, L0731: 1, L0758: 1, S0031: 1, S0260: 1, S0242: 1 and H0422: 1. AR039: 7, AR096: 5, AR052: 4, AR104: 4, AR033: 3, AR053: 3, AR089: 3, AR055: 3, AR060: 3, AR061: 2					73-89, 26-42
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500	HLYER32	854463	510	774 - 442	1915				L0438: 6, L0439: 6, L0776: 5, H0428: 4, L0805: 4, H0687: 3, L0770: 3, H0651: 3, L0789: 2, L0756: 2, L0758: 2, L0361: 2, S0212: 1, S0001: 1, H0351: 1, H0052: 1, H0327: 1, H0178: 1, L0769: 1, L0767: 1, L0794: 1, L0807: 1, L0759: 1 and L0608: 1. AR096: 4, AR052: 3, AR033: 2, AR104: 2, AR061: 2, AR053: 2, AR089: 1, AR060: 1, AR055: 1, AR039: 0 L0805: 3, L0776: 3, L0766: 2, L0748: 2, L0747: 2, L0750: 2, L0485: 2, S0001: 1, L0534: 1, S0360: 1, H0580: 1, S6014: 1, H0036: 1, S0051: 1, H0188: 1, H0379: 1, S0440: 1, L0761: 1, L0800: 1, L0651: 1, L0659: 1, L0517: 1, L0787: 1, H0593: 1, S0260: 1 and H0445: 1.				69-85	
501	HFPEL47	854659	511	98 - 604	1916	Leu-46 to Trp-52, Glu-90 to Arg-96, Leu-151 to Asp-159.	AR055: 3, AR060: 3, AR033: 2, AR061: 2, AR089: 2, AR052: 2,	Xp22.1- p21.3	300018, 300075, 300077,	106-135				

502	HTPIJ41	854779	512	551 - 1507	1917	Pro-87 to Tyr-99, Pro-102 to Tyr-117, Arg-144 to Trp-150, Phe-164 to Ile-180, Trp-293 to Tyr-307.	AR053: 2, AR096: 1, AR104: 1, AR039: 1 S0222: 1	300200, 301200, 301220, 302350, 306000, 306000, 306100, 307030, 307800, 309470, 309510, 309585, 311770, 312040, 312170, 312612, 312700, 313400	245-262, 207-223
							AR052: 16, AR089: 15, AR053: 13, AR039: 12, AR033: 10, AR060: 9, AR061: 4, AR096: 1, AR104: 1, AR055: 0 L0777: 4, H0635: 3, L0775: 3, L0731: 3, L0758: 3, S0276: 3, H0170: 2, L0470: 2, H0013: 2, H0575: 2, H0046: 2, H0622: 2, H0634: 2, L0766: 2, L0783: 2, L0809: 2, L0664: 2,		

503	HNTNC49	855013	513	40 - 1020	1918	Arg-80 to Gly-86, Gly-103 to Leu-110.	S0328: 2, S0152: 2, S3014: 2, L0439: 2, L0740: 2, L0747: 2, L0779: 2, L0599: 2, H0638: 1, H0411: 1, H0550: 1, H0069: 1, H0427: 1, L0021: 1, S0010: 1, L0105: 1, H0309: 1, H0572: 1, H0083: 1, S0003: 1, S0214: 1, H0169: 1, H0674: 1, H0561: 1, S0464: 1, H0647: 1, S0210: 1, L0369: 1, L0769: 1, L0764: 1, L0648: 1, L0662: 1, L0768: 1, L0803: 1, L0806: 1, L0790: 1, H0520: 1, S0126: 1, S0122: 1, H0521: 1, H0522: 1, S0044: 1, S0406: 1, H0436: 1, S3012: 1, L0754: 1, L0745: 1, L0746: 1, L0750: 1, L0780: 1, L0759: 1, L0601: 1, S0192: 1 and S0424: 1.				236-252
						AR039: 26, AR053: 18, AR052: 18, AR089: 17, AR096: 16, AR104: 16, AR033: 16, AR060: 13, AR055: 9, AR061: 5 L0769: 10, L0659: 10, L0766: 7, L0748: 7, L0747: 7, L0750: 7, L0665: 6,					

	L0743: 6, L0779: 6, L0754: 5, L0758: 5, L0761: 4, L0771: 4, L0662: 4, L0731: 4, H0620: 3, T0006: 3, H0617: 3, L0520: 3, L0774: 3, L0776: 3, L0809: 3, L0439: 3, L0777: 3, L0595: 3, H0657: 2, H0580: 2, H0156: 2, H0618: 2, H0253: 2, H0081: 2, L0471: 2, H0012: 2, S0366: 2, S0038: 2, H0130: 2, L0770: 2, L0768: 2, L0794: 2, L0806: 2, L0805: 2, L0657: 2, L0666: 2, L0663: 2, H0672: 2, H0539: 2, H0696: 2, L0740: 2, L0752: 2, L0759: 2, S0031: 2, L0599: 2, H0543: 2, H0295: 1, S0116: 1, H0341: 1, H0402: 1, H0305: 1, H0589: 1, H0638: 1, S0418: 1, S0356: 1, S0358: 1, S0360: 1, H0208: 1, H0619: 1, H0441: 1, H0455: 1, H0587: 1, H0333: 1, L0623: 1, H0486: 1, L0021: 1, H0599: 1, H0108: 1, H0042: 1, S0010: 1, H0581: 1, H0546: 1, H0545: 1, H0046: 1, H0050: 1,	
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504	HLTCO94	855239	514	238 - 612	1919	Ser-2 to Tyr-8.	H0057: 1, H0266: 1, H0188: 1, H0687: 1, H0039: 1, H0622: 1, H0424: 1, H0181: 1, H0383: 1, H0166: 1, H0673: 1, H0135: 1, H0090: 1, H0038: 1, H0087: 1, T0067: 1, H0623: 1, H0100: 1, S0112: 1, T0041: 1, H0494: 1, H0560: 1, L0763: 1, L0638: 1, L0373: 1, L0646: 1, L0800: 1, L0642: 1, L0643: 1, L0644: 1, L0764: 1, L0649: 1, L0386: 1, L0804: 1, L0650: 1, L0651: 1, L0540: 1, L0542: 1, L0783: 1, L0545: 1, L0367: 1, L0789: 1, L0792: 1, L0664: 1, L0438: 1, H0520: 1, H0547: 1, H0689: 1, H0670: 1, H0651: 1, S0380: 1, H0436: 1, L0744: 1, L0749: 1, L0756: 1, L0780: 1, L0755: 1, H0445: 1, H0595: 1, L0596: 1, L0591: 1 and L0608: 1. AR052: 18, AR053: 14, AR033: 7, AR096: 7, AR089: 6, AR060: 5, AR104: 5, AR055: 5, AR039: 3, AR061: 3			81-100, 13-29
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		H0694: 121, L0749: 14, L0439: 10, S0192: 9, H0656: 7, L0750: 7, L0731: 6, S0152: 5, L0740: 5, L0794: 4, L0747: 4, H0052: 3, S0003: 3, L0770: 3, L0769: 3, L0764: 3, L0803: 3, L0776: 3, L0438: 3, S0026: 3, H0341: 2, S0376: 2, S0408: 2, L0471: 2, H0014: 2, H0510: 2, L0598: 2, L0763: 2, L0765: 2, L0662: 2, L0388: 2, L0774: 2, L0805: 2, L0809: 2, L0789: 2, H0670: 2, L0602: 2, S0028: 2, L0751: 2, L0779: 2, L0752: 2, L0757: 2, H0542: 2, H0423: 2, H0422: 2, H0171: 1, H0686: 1, S0114: 1, T0049: 1, H0657: 1, H0661: 1, H0402: 1, S0444: 1, S0360: 1, S0222: 1, H0441: 1, H0442: 1, H0497: 1, H0574: 1, L0021: 1, H0575: 1, H0581: 1, T0115: 1, H0569: 1, S0051: 1, H0083: 1, H0375: 1, S0214: 1, H0328: 1, H0039: 1, H0644: 1, H0090: 1, H0616: 1, H0623: 1,		
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505	HBIMT77	855274	515	336 - 743	1920	Lys-8 to Gly-15, Arg-29 to Ala-34, Asp-65 to Pro-70.	<p>H0059: 1, H0100: 1, S0142: 1, S0002: 1, L0369: 1, L0637: 1, L0646: 1, L0771: 1, L0363: 1, L0766: 1, L0649: 1, L0381: 1, L0804: 1, L0654: 1, L0606: 1, L0659: 1, L0783: 1, L0544: 1, L0663: 1, S0374: 1, L0352: 1, H0520: 1, H0547: 1, H0683: 1, H0660: 1, S0328: 1, H0539: 1, H0522: 1, L0742: 1, L0748: 1, L0756: 1, L0777: 1, L0758: 1, L0759: 1, H0445: 1, S0434: 1, S0436: 1, L0599: 1, L0601: 1, H0653: 1 and H0543: 1.</p> <p>AR053: 4, AR033: 2, AR089: 2, AR055: 1, AR096: 1, AR104: 1, AR061: 1, AR060: 1, AR039: 0, AR052: 0 L0758: 6, L0794: 4, L0764: 3, L0809: 3, S0360: 2, H0253: 2, H0196: 2, H0052: 2, H0150: 2, H0024: 2, H0424: 2, H0606: 2, L0770: 2, L0803: 2, H0547: 2, H0593: 2, L0747: 2, L0759: 2, L0485: 2, S6024:</p>				42-62
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506	HTLIV70	855314	516	94 - 1047	1921	Asp-36 to Ser-42.	1, H0657: 1, H0341: 1, H0402: 1, S0046: 1, H0549: 1, H0608: 1, H0587: 1, H0618: 1, H0546: 1, H0123: 1, H0081: 1, H0099: 1, H0271: 1, H0328: 1, H0124: 1, H0040: 1, H0116: 1, L0475: 1, L0761: 1, L0646: 1, L0662: 1, L0363: 1, L0806: 1, L0635: 1, L0790: 1, S0330: 1, H0521: 1, L0611: 1, L0439: 1, L0751: 1 and L0749: 1.				73-90, 152-168, 51-67, 270-286, 207-223
507	HFADF33	855433	517	532 - 197	1922	Met-1 to His-23, Asp-64 to Ser-79.	AR039: 18, AR033: 17, AR089: 15, AR052: 14, AR055: 13, AR053: 13, AR061: 9, AR096: 9, AR060: 8, AR104: 6 H0618: 2, S0031: 2, H0545: 1, S0050: 1, H0031: 1, H0124: 1, H0130: 1, H0646: 1, H0521: 1, S0432: 1, L0601: 1 and L0600: 1. AR033: 28, AR052: 22, AR053: 20, AR055: 20, AR089: 19, AR039: 17, AR060: 10, AR096: 10, AR061: 9, AR104: 5 L0439: 29, L0766: 11,				91-109



508	HETJQ73	855453	518	538 - 1269	1923			<p>L0742: 8, L0769: 6, L0351: 5, S0222: 4, H0052: 4, T0010: 4, S6024: 3, L0768: 3, L0779: 3, L0759: 3, H0455: 2, L0794: 2, L0776: 2, L0438: 2, S0001: 1, L0534: 1, S0049: 1, S0051: 1, S0038: 1, L0763: 1, L0770: 1, L0805: 1, L0745: 1, L0777: 1, L0753: 1 and L0758: 1.</p> <p>AR061: 56, AR055: 8, AR089: 6, AR060: 6, AR096: 6, AR052: 5, AR053: 4, AR033: 4, AR104: 3, AR039: 2, H0046: 9, L0766: 8, L0731: 6, L0779: 5, L0800: 4, S0003: 3, S0408: 2, H0494: 2, S0422: 2, L0803: 2, L0804: 2, L0805: 2, L0776: 2, L0655: 2, L0748: 2, L0754: 2, S0412: 2, H0306: 1, S0418: 1, S0444: 1, S0222: 1, H0611: 1, L0163: 1, H0266: 1, S0214: 1, L0483: 1, L0055: 1, L0455: 1, H0038: 1, H0063: 1, H0413: 1, S0440: 1, L0770: 1, L0771: 1, L0521:</p>				<p>163-202, 134-159, 223-241, 113-131, 199-215, 156-172</p>
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509	HAGGV44	855714	519	298 - 606	1924			1, L0806: 1, L0653: 1, L0659: 1, L0790: 1, L0666: 1, L0663: 1, S0126: 1, H0690: 1, H0684: 1, H0658: 1, H0710: 1, H0521: 1, H0478: 1, S0206: 1, L0740: 1, L0751: 1, L0750: 1, L0777: 1, L0758: 1, L0605: 1, L0595: 1, S0192: 1, H0543: 1, H0423: 1 and S0424: 1.				37-55, 60- 76, 79-95
								AR055: 10, AR033: 6, AR060: 5, AR089: 5, AR061: 4, AR052: 4, AR053: 4, AR096: 3, AR039: 3, AR104: 3 L0777: 14, L0769: 3, L0803: 3, L0805: 3, L0742: 3, L0439: 3, S0346: 2, L0766: 2, H0658: 2, L0749: 2, L0752: 2, L0407: 1, L0415: 1, S0116: 1, H0306: 1, H0305: 1, H0351: 1, H0441: 1, H0392: 1, H0486: 1, L0586: 1, H0427: 1, S0010: 1, T0048: 1, H0251: 1, L0471: 1, H0687: 1, H0428: 1, H0124: 1, H0413: 1, H0517: 1, L0369: 1, L0638: 1, L0775: 1, L0651:				

510	HTTDM15	856108	520	38 - 778	1925			1, L0776: 1, L0518: 1, L0789: 1, L0792: 1, L0438: 1, L0352: 1, S0380: 1, S0188: 1, S0146: 1, H0576: 1, L0740: 1, L0747: 1, L0756: 1, L0779: 1, L0755: 1, L0759: 1, S0260: 1, L0601: 1, S0192: 1 and H0423: 1.				133-149, 17-33, 109-125
511	HADCY76	856212	521	208 - 567	1926	Glu-40 to Phe-45.		AR052: 12, AR055: 11, AR053: 10, AR089: 9, AR096: 9, AR033: 8, AR060: 8, AR061: 7, AR104: 5, AR039: 5 L0748: 4, H0441: 2, H0333: 2, H0670: 2, H0660: 2, L0439: 2, L0747: 2, L0601: 2, S0218: 1, H0650: 1, H0656: 1, H0254: 1, H0255: 1, H0013: 1, H0327: 1, H0266: 1, H0070: 1, H0040: 1, T0042: 1, L0809: 1, L0790: 1, L0792: 1, H0689: 1, H0435: 1, H0134: 1, L0741: 1, L0759: 1 and S0042: 1.				48-65

									AR061: 0, AR033: 0, AR052: 0 L0749: 3, H0346: 1, H0370: 1, H0427: 1 and L0439: 1.				
512	HDPXW75	856251	522	21 - 548	1927	Ser-4 to Ser-11.			AR039: 3, AR096: 2, AR104: 2, AR089: 2, AR052: 1, AR061: 1, AR053: 0, AR033: 0, AR060: 0, AR055: 0 S0278: 1, H0521: 1 and L0740: 1.				52-69, 160-176
513	HMCDC50	856301	523	103 - 525	1928	Gly-5 to Asp-11.			AR060: 167, AR055: 164, AR061: 136, AR033: 116, AR039: 97, AR104: 97, AR053: 89, AR089: 83, AR052: 73, AR096: 70 S0142: 4, H0581: 1, S0250: 1 and H0521: 1.				122-138
514	HMAZDZ55	856326	524	33 - 743	1929	His-11 to Tyr-17.			AR033: 3, AR061: 3, AR053: 3, AR060: 2, AR089: 2, AR104: 2, AR096: 2, AR055: 1, AR039: 0, AR052: 0 S0144: 5, S0278: 3, S0142: 2, S0426: 2, L0665: 2, L0748: 2, H0556: 1, H0583: 1, H0644: 1, H0617: 1, H0606: 1, H0090: 1, S0002:				127-158, 157-185, 106-125, 49-65, 205-221

515	HTXNB76	856497	525	617 - 315	1930	Met-1 to Asn-13.	1, L0770: 1, L0767: 1, L0375: 1, L0659: 1, L0791: 1, H0689: 1, H0518: 1 and L0758: 1. AR096: 2, AR039: 2, AR089: 1, AR053: 1, AR033: 1, AR061: 1, AR060: 1, AR055: 1, AR104: 0, AR052: 0 L0766: 6, L0748: 5, H0556: 3, H0090: 2, L0655: 2, H0580: 1, H0581: 1, L0040: 1, L0055: 1, H0591: 1, H0396: 1, H0641: 1, L0761: 1, L0772: 1, L0794: 1, L0387: 1, L0606: 1, L0666: 1, L0664: 1, H0659: 1, S0378: 1, L0779: 1, H0445: 1 and H0542: 1.	83-101		
516	HLWDD49	856506	526	127 - 465	1931	Trp-9 to Gly-24, Gly-27 to Gln-34.	AR096: 1, AR033: 1, AR089: 1, AR060: 1, AR061: 0, AR052: 0, AR039: 0, AR104: 0, AR053: 0, AR055: 0 H0254: 1, H0553: 1, H0429: 1, H0538: 1 and H0520: 1.	87-105		
517	HLQGX48	856704	527	921 - 1436	1932	Gly-59 to Pro-68, Gln-87 to Lys-96,	AR039: 30, AR055: 28, AR033: 25, AR053: 19,	21-51, 146-164,		

518	H2CBH17	856745	528	335 - 2263	1933	Gly-120 to Cys-125.	AR060: 19, AR089: 16, AR052: 15, AR104: 14, AR061: 12, AR096: 12 L0766: 15, L0805: 5, H0632: 2, L0789: 2, L0740: 2, H0395: 1, H0656: 1, H0341: 1, H0574: 1, H0647: 1, S0422: 1, L0761: 1, L0794: 1, L0776: 1, L0515: 1, S0216: 1, H0144: 1, H0682: 1, H0660: 1 and L0755: 1.				127-143, 69-85
						Leu-27 to Ser-35, Pro-64 to Gly-70, Glu-86 to Thr-92, Ser-100 to Glu-105, Arg-135 to Arg-140, Thr-366 to Cys-378, Asp-395 to His-400, Glu-436 to Arg-442, Glu-478 to Asn-486, Ser-530 to Asp-538, Glu-614 to Gly-625, Ile-637 to Leu-643.	AR096: 7, AR033: 7, AR052: 7, AR060: 6, AR053: 5, AR089: 5, AR055: 4, AR104: 4, AR039: 3, AR061: 2 L0438: 9, L0439: 4, H0170: 3, H0615: 3, S0378: 3, L0750: 3, H0553: 2, H0090: 2, H0529: 2, L0764: 2, L0803: 2, L0804: 2, L0775: 2, L0652: 2, L0659: 2, L0809: 2, H0144: 2, S0028: 2, L0748: 2, L0745: 2, L0779: 2, L0777: 2, L0759: 2, L0591: 2, H0624: 1, S0356: 1, S0376: 1, S0360: 1, L0717: 1, S0278: 1, H0369: 1, H0431: 1,				321-338, 581-598, 459-475, 285-301, 213-229, 177-193

519	HLQEF25	856748	529	70 - 432	1934	Pro-17 to Gly-31.	H0586: 1, H0574: 1, H0013: 1, H0427: 1, H0122: 1, H0052: 1, T0110: 1, L0118: 1, H0050: 1, H0024: 1, H0051: 1, H0594: 1, S0003: 1, H0031: 1, H0644: 1, H0591: 1, H0038: 1, H0551: 1, H0264: 1, L0435: 1, T0042: 1, H0131: 1, S0142: 1, S0210: 1, L0637: 1, L0772: 1, L0800: 1, L0773: 1, L0794: 1, L0766: 1, L0375: 1, L0657: 1, L0665: 1, H0547: 1, S0126: 1, H0684: 1, H0660: 1, H0672: 1, H0518: 1, S0136: 1, H0436: 1, L0747: 1, L0756: 1, L0752: 1, H0445: 1, L0595: 1, H0667: 1, H0543: 1, L0697: 1 and S0424: 1. AR055: 6, AR061: 6, AR060: 3, AR053: 3, AR096: 3, AR033: 3, AR089: 2, AR052: 2, AR039: 2, AR104: 1 L0604: 8, L0485: 6, L0748: 5, L0777: 3, S0438: 2, L0809: 2, H0722: 1, H0574: 1, H0041: 1, H0708: 1, S0366: 1, L0747: 1,				99-121
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520	HTOHA37	856923	530	12 - 881	1935				L0749: 1, L0780: 1 and L0759: 1. AR096: 3, AR089: 3, AR055: 3, AR060: 2, AR033: 2, AR053: 2, AR052: 1, AR061: 1, AR104: 1, AR039: 0 H0585: 8, H0265: 3, H0141: 2, S0360: 2, H0251: 2, H0031: 2, H0551: 2, H0529: 2, L0519: 2, L0545: 2, L0664: 2, H0668: 2, S0040: 1, T0049: 1, H0656: 1, H0255: 1, S0376: 1, S0132: 1, H0546: 1, H0375: 1, S0314: 1, H0428: 1, H0039: 1, H0553: 1, L0055: 1, H0264: 1, H0561: 1, H0509: 1, L0643: 1, L0803: 1, L0651: 1, L0378: 1, L0776: 1, L0659: 1, L0790: 1, L0666: 1, H0519: 1, S0126: 1, H0521: 1, H0576: 1, L0777: 1, L0755: 1, L0731: 1, L0757: 1, L0759: 1, H0665: 1, S0194: 1 and S0458: 1.			41-57, 101-117
521	HLHAW26	856982	531	299 - 613	1936				AR055: 12, AR061: 7, AR052: 7, AR060: 7		34-51	



522	HKAAZ46	857100	532	281 - 679	1937	Asn-26 to Asn-31, Ser-67 to Ala-74, Ile-105 to Lys-110.	AR089: 6, AR033: 5, AR096: 5, AR053: 5, AR039: 3, AR104: 3 H0144: 3, H0208: 1, H0369: 1 and H0024: 1.				79-104, 109-127, 47-63
523	HAQAF12	857311	533	45 - 653	1938	Ala-5 to Lys-36, Ser-41 to Leu-80, Gly-98 to Gly-112, Gly-198 to Asp-203.	AR039: 32, AR053: 22, AR033: 19, AR052: 18, AR089: 17, AR055: 17, AR104: 13, AR096: 13, AR060: 12, AR061: 10 H0295: 1 and S0330: 1.				127-150, 160-176
524	HTXEX35	857404	534	263 - 793	1939	Gln-56 to Pro-65, Pro-70 to Asn-76, Gly-85 to Trp-94, Arg-103 to Ser-108.	AR055: 7, AR052: 6, AR053: 5, AR033: 4, AR061: 4, AR096: 4, AR060: 4, AR089: 4, AR039: 3, AR104: 1 L0439: 4, L0748: 3, L0731: 3, H0265: 2, H0015: 2, H0083: 2, H0040: 2, L0764: 2, L0766: 2, L0543: 2, S0027: 2, L0758: 2, L0759: 2, L0604: 2, H0685: 1, H0656: 1, S0360: 1,				134-152

525	HE8TE64	857478	535	151 - 831	1940	Gln-14 to Ala-21, Leu-45 to Arg-51, Arg-54 to Asp-61, Ser-88 to Ile-95, Leu-111 to Gln-117.	S0045: 1, L0717: 1, S0222: 1, H0156: 1, H0575: 1, H0046: 1, H0014: 1, H0266: 1, H0687: 1, H0166: 1, H0674: 1, H0529: 1, L0769: 1, L0645: 1, L0363: 1, L0768: 1, L0806: 1, L0557: 1, L0776: 1, L0789: 1, L0665: 1, L0438: 1, H0682: 1, H0648: 1, L0779: 1, L0752: 1, H0444: 1, L0608: 1, H0668: 1 and H0423: 1.				130-162, 171-187
526	HL3AC38	857623	536	87 - 872	1941		AR061: 4, AR033: 3, AR055: 3, AR053: 3, AR060: 2, AR104: 2, AR089: 2, AR039: 1, AR052: 1, AR096: 1 H0013: 1 and S0250: 1. AR055: 13, AR033: 11, AR053: 10, AR052: 9, AR089: 8, AR060: 8, AR061: 6, AR096: 4, AR104: 4, AR039: 3 S0418: 2, H0046: 2, H0542: 2, H0341: 1, H0421: 1, H0052: 1, L0471: 1, S0022: 1, H0038: 1, H0433: 1, H0560: 1, H0132: 1, S0374: 1, S3014: 1, L0759:				70-87, 119-135

527	HMUAO31	857664	537	11 - 955	1942	Gln-68 to Gln-74.	<p>1 and S0276: 1.</p> <p>AR039: 11, AR033: 9,  AR053: 8, AR089: 7,  AR052: 7, AR055: 7,  AR096: 6, AR060: 5,  AR061: 5, AR104: 5  H0494: 12, L0770: 12,  H0657: 11, H0659: 9,  L0774: 8, L0776: 8, H0648:  8, L0755: 8, S0410: 6,  L0769: 6, L0766: 6, L0750:  6, H0638: 5, S0408: 5,  H0559: 5, S0440: 5, L0775:  5, H0520: 5, H0556: 4,  H0341: 4, S0418: 4, S0358:  4, S0376: 4, S0360: 4,  H0617: 4, L0665: 4, L0748:  4, L0777: 4, L0752: 4,  L0759: 4, S0434: 4, S0420:  3, H0253: 3, H0424: 3,  H0616: 3, H0560: 3, L0374:  3, H0144: 3, L0439: 3,  L0740: 3, L0747: 3, L0731:  3, L0758: 3, L0596: 3,  L0601: 3, S0026: 3, S0194:  3, H0170: 2, H0265: 2,  H0685: 2, H0656: 2, L0415:  2, S0444: 2, S0278: 2,  H0550: 2, H0257: 2, T0109:  2, H0156: 2, H0618: 2,</p>			204-225, 142-158, 82-98, 6- 22
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	H0545: 2, L0471: 2, H0620: 2, H0373: 2, H0083: 2, H0290: 2, H0031: 2, H0040: 2, H0551: 2, H0412: 2, L0065: 2, S0438: 2, H0538: 2, L0763: 2, L0772: 2, L0646: 2, L0644: 2, L0764: 2, L0662: 2, L0518: 2, L0783: 2, L0663: 2, S0374: 2, H0547: 2, H0435: 2, H0658: 2, H0670: 2, S0328: 2, L0753: 2, H0445: 2, H0665: 2, H0542: 2, H0423: 2, H0506: 2, H0624: 1, S0114: 1, S0134: 1, H0583: 1, H0650: 1, S0116: 1, H0255: 1, H0663: 1, H0662: 1, L0481: 1, H0125: 1, S0442: 1, S0354: 1, H0675: 1, H0580: 1, S0046: 1, H0619: 1, H0351: 1, H0437: 1, H0369: 1, H0431: 1, H0370: 1, H0600: 1, H0586: 1, H0587: 1, H0331: 1, H0486: 1, H0069: 1, H0575: 1, S0346: 1, H0705: 1, T0048: 1, S0182: 1, H0318: 1, H0581: 1, S0049: 1, H0052: 1, H0086: 1, H0563: 1, H0123: 1, H0081: 1,	
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528	HHA WD3 3	857697	538	407 - 1132	1943	Met-1 to Ser-9, Ser-11 to Val-21, Gln-64 to Pro-69,	H0014: 1, H0510: 1, H0375: 1, H0188: 1, S0022: 1, H0428: 1, H0708: 1, S0366: 1, H0135: 1, H0634: 1, H0063: 1, H0087: 1, H0413: 1, H0623: 1, H0059: 1, S0386: 1, H0100: 1, T0042: 1, L0475: 1, H0386: 1, H0646: 1, L0598: 1, H0529: 1, L0369: 1, L0520: 1, L0762: 1, L0371: 1, L0638: 1, L0373: 1, L0773: 1, L0521: 1, L0363: 1, L0805: 1, L0655: 1, L0517: 1, L0540: 1, L0542: 1, L0526: 1, L0809: 1, L0545: 1, L0647: 1, L0789: 1, L0791: 1, H0691: 1, H0519: 1, H0689: 1, H0690: 1, H0660: 1, H0672: 1, H0651: 1, S0330: 1, H0539: 1, S0378: 1, S0380: 1, H0521: 1, S0406: 1, L0749: 1, L0780: 1, L0757: 1, L0608: 1, L0594: 1, H0668: 1, H0653: 1, H0667: 1, S0242: 1, S0276: 1 and H0422: 1.					110-135, 69-85, 47- 63
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529	HTZMB08	857723	539	90 - 404	1944	Thr-88 to Arg-96, Asp-106 to Gly-116.	AR096: 3, AR060: 2, AR055: 2, AR061: 2 L0757: 3, S0410: 2, H0052: 2, L0794: 2, L0766: 2, L0806: 2, L0809: 2, L0750: 2, L0593: 2, S0418: 1, L0534: 1, S0442: 1, S0408: 1, H0619: 1, H0036: 1, H0318: 1, H0009: 1, H0050: 1, H0051: 1, H0267: 1, L0455: 1, H0316: 1, H0135: 1, H0616: 1, H0412: 1, H0494: 1, S0150: 1, L0763: 1, L0768: 1, L0803: 1, L0804: 1, L0776: 1, L0542: 1, L0789: 1, H0547: 1, S0152: 1, L0740: 1, L0754: 1, L0599: 1, L0594: 1, S0196: 1, H0423: 1 and H0506: 1.			
530	HUBCE86	857743	540	80 - 1324	1945	Tyr-29 to Thr-34, Pro-87 to Lys-97.	AR060: 2, AR089: 2, AR053: 1, AR061: 1, AR033: 1, AR096: 0, AR104: 0, AR055: 0, AR039: 0 S0001: 1, H0333: 1 and S3020: 1.			43-59 128-144, 346-362.

							AR104: 8, AR039: 7, AR053: 7, AR089: 7, AR033: 7, AR061: 5 L0748: 4, H0333: 2, L0766: 2, H0556: 1, S0114: 1, S0116: 1, S0360: 1, H0438: 1, H0156: 1, H0599: 1, H0706: 1, H0590: 1, H0135: 1, H0264: 1, T0042: 1, L0783: 1, L0809: 1, L0544: 1, L0666: 1, L0663: 1, S0052: 1, L0439: 1, L0749: 1, S0434: 1, L0595: 1 and S0424: 1.				307-323
531	HFPCK56	857809	541	429 - 869	1946	Pro-2 to His-10, Pro-13 to Gly-19, Ser-23 to Arg-29.	AR096: 13, AR052: 11, AR053: 10, AR033: 10, AR089: 9, AR055: 9, AR104: 8, AR060: 8, AR061: 5, AR039: 5 L0809: 7, H0658: 6, L0748: 6, S0222: 5, L0794: 5, L0776: 5, L0756: 5, L0752: 5, L0731: 5, L0770: 4, L0662: 4, L0743: 4, L0439: 4, L0751: 4, L0754: 4, L0747: 4, L0759: 4, H0013: 3, L0769: 3, L0805: 3, L0789: 3, L0664: 3, L0740: 3, L0777: 3, L0753: 3, L0758: 3, H0333: 2,				27-51, 126-147

532	HAPSP72	857844	542	224 -	1947	Lys-99 to Tyr-110,	H0052: 2, H0545: 2, H0428: 2, L0483: 2, L0455: 2, H0509: 2, L0763: 2, L0771: 2, L0803: 2, L0804: 2, L0806: 2, L0527: 2, L0783: 2, L0666: 2, L0663: 2, S0152: 2, S0146: 2, L0744: 2, L0745: 2, L0603: 2, H0686: 1, S0116: 1, H0255: 1, S0418: 1, S0408: 1, H0645: 1, H0393: 1, L0717: 1, H0351: 1, H0370: 1, H0574: 1, H0156: 1, H0599: 1, H0590: 1, H0253: 1, H0390: 1, S0049: 1, H0009: 1, H0178: 1, H0071: 1, T0010: 1, H0252: 1, H0615: 1, T0006: 1, H0033: 1, H0424: 1, H0032: 1, H0124: 1, S0142: 1, L0638: 1, L0761: 1, L0641: 1, L0768: 1, L0774: 1, L0775: 1, L0657: 1, L0636: 1, L0517: 1, L0518: 1, L0665: 1, H0144: 1, H0659: 1, H0670: 1, H0660: 1, H0696: 1, H0626: 1, S0432: 1, S0027: 1, L0742: 1, L0750: 1, L0757: 1 and S0011: 1.			111-129



				802		Pro-145 to Leu-152, Pro-177 to Thr-182.	AR052: 6, AR060: 5, AR096: 5, AR053: 5, AR089: 4, AR104: 3, AR061: 3, AR039: 2 L0777: 5, L0766: 3, L0740: 3, L0665: 2, H0521: 2, L0748: 2, L0779: 2, L0752: 2, H0624: 1, S0420: 1, S0442: 1, L0428: 1, H0619: 1, H0431: 1, H0575: 1, H0318: 1, L0719: 1, S0214: 1, H0598: 1, H0591: 1, H0616: 1, S0422: 1, L0770: 1, L0659: 1, H0520: 1, S3014: 1, L0742: 1, L0743: 1, L0744: 1, L0751: 1, L0747: 1, L0756: 1, L0759: 1 and S0242: 1.			
533	HACBM44	857913	543	107 - 490	1948	Pro-23 to Glu-29, Tyr-39 to Ser-46, Pro-69 to Asp-89, Asp-112 to Pro-117.	AR033: 13, AR096: 9, AR052: 9, AR060: 8, AR089: 8, AR053: 8, AR055: 8, AR061: 5, AR039: 4, AR104: 4 L0770: 10, L0754: 8, L0731: 8, S0358: 6, S0414: 6, H0255: 5, S0022: 4, H0627: 4, L0757: 4, H0657: 3, H0090: 3, H0539: 3, L0755: 3, L0759: 3, S0026: 3, H0556: 2, S0007: 2,			47-66

				H0438: 2, S0214: 2, H0135: 2, L0764: 2, L0766: 2, L0803: 2, L0804: 2, L0806: 2, L0789: 2, L0663: 2, S0330: 2, L0740: 2, L0747: 2, L0750: 2, L0758: 2, L0596: 2, L0591: 2, S0040: 1, H0656: 1, S0001: 1, H0254: 1, S0418: 1, S0356: 1, H0229: 1, S0046: 1, H0619: 1, H0645: 1, H0550: 1, H0392: 1, H0331: 1, T0039: 1, H0635: 1, H0427: 1, S0280: 1, H0036: 1, S0010: 1, S0049: 1, H0546: 1, H0457: 1, L0471: 1, H0620: 1, H0051: 1, S0051: 1, T0010: 1, H0179: 1, S0250: 1, H0252: 1, L0143: 1, L0455: 1, S0036: 1, H0040: 1, H0616: 1, H0551: 1, H0412: 1, H0059: 1, H0494: 1, S0144: 1, S0142: 1, S0002: 1, L0521: 1, L0662: 1, L0774: 1, L0775: 1, L0809: 1, L0647: 1, H0144: 1, S0374: 1, L0438: 1, H0520: 1, H0593: 1, H0683: 1, H0684: 1, H0660: 1, H0672: 1, H0522: 1,				
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534	HLTEO24	857964	544	24 - 347	1949	Leu-10 to Tyr-20, Leu-24 to Ser-30.	S0037: 1, S0028: 1, L0748: 1, L0756: 1, L0777: 1, H0343: 1, L0605: 1, L0485: 1, L0599: 1, L0593: 1, L0366: 1, S0011: 1, H0665: 1 and H0543: 1. AR055: 8, AR060: 4, AR052: 4, AR061: 4, AR033: 3, AR053: 3, AR089: 3, AR096: 2, AR104: 2, AR039: 1 H0616: 3, H0619: 1, H0457: 1, H0090: 1, H0038: 1, S0422: 1, L0804: 1 and L0754: 1.				26-58, 49- 65
535	HHFJP51	857977	545	72 - 422	1950	Cys-26 to Ser-32, Pro-66 to Arg-77.	AR055: 7, AR060: 6, AR052: 5, AR089: 5, AR033: 5, AR104: 4, AR039: 4, AR053: 4, AR096: 3, AR061: 3 H0124: 13, L0809: 7, L0601: 4, S0358: 2, L0666: 2, H0670: 2, L0439: 2, H0556: 1, S0420: 1, S0442: 1, H0619: 1, H0614: 1, H0587: 1, H0581: 1, H0457: 1, H0078: 1, H0271: 1, H0031: 1, H0617: 1, H0135: 1, L0762: 1, L0769: 1,				77-95, 100-116

536	HHFLL87	858001	546	162 - 842	1951	Arg-17 to Trp-23, Asp-37 to Asp-45, Gln-66 to Gly-75, Ser-137 to Ala-144.	L0373: 1, L0800: 1, L0662: 1, L0363: 1, L0794: 1, L0803: 1, L0774: 1, L0775: 1, L0375: 1, L0655: 1, L0664: 1, L0665: 1, S0374: 1, H0547: 1, H0682: 1, H0658: 1, S0152: 1, L0747: 1, L0779: 1, L0596: 1 and L0592: 1. AR033: 19, AR039: 14, AR089: 10, AR055: 9, AR053: 9, AR052: 8, AR096: 6, AR060: 6, AR061: 6, AR104: 4 L0745: 13, L0769: 7, S0036: 6, L0753: 5, S0031: 5, H0052: 4, H0327: 4, H0046: 4, H0051: 4, T0006: 4, L0742: 4, L0746: 4, L0756: 4, L0752: 4, S6024: 3, S0282: 3, H0619: 3, S0388: 3, S0051: 3, L0741: 3, L0749: 3, S0222: 2, S0049: 2, S6028: 2, L0806: 2, L0776: 2, L0438: 2, L0777: 2, S0035: 1, H0662: 1, H0438: 1, L0021: 1, H0575: 1, S0182: 1, H0310: 1, H0009: 1, H0050: 1, T0010: 1, H0399: 1, H0615:					172-190, 197-213
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								1, H0604: 1, L0456: 1, L0763: 1, L0770: 1, L0630: 1, L0381: 1, L0774: 1, L0775: 1, L0805: 1, L0659: 1, L0788: 1, H0689: 1, H0684: 1, H0670: 1, H0134: 1, H0478: 1, L0612: 1, L0743: 1, L0747: 1, L0779: 1, L0758: 1, S0260: 1 and L0366: 1.				
537	HCUDR30	858010	547	33 - 542	1952	Leu-69 to Asp-76.		AR096: 2, AR033: 2, AR055: 2, AR053: 1, AR104: 1, AR089: 1, AR061: 1, AR060: 1, AR039: 0, AR052: 0, H0553: 2, T0049: 1, H0656: 1, H0402: 1, H0125: 1, S0045: 1, H0619: 1, H0586: 1, T0114: 1, H0581: 1, H0628: 1, H0551: 1, S0310: 1, H0520: 1, H0539: 1, H0521: 1, L0779: 1, S0434: 1 and L0485: 1.				89-105, 1-17
538	HHFHI24	858020	548	75 - 431	1953	Pro-30 to His-50.		AR039: 2, AR055: 1, AR061: 1, AR104: 1, AR060: 0, AR089: 0, AR033: 0, AR096: 0, AR052: 0, AR053: 0, L0749: 3, H0341: 1 and				81-97

539	HSIAI48	858030	549	163 - 573	1954				H0050: 1, AR104: 513, AR061: 376, AR055: 327, AR060: 253, AR033: 188, AR089: 172, AR039: 115, AR053: 110, AR052: 101, AR096: 87 H0036: 1, H0050: 1 and H0673: 1.				94-113, 17-33
540	HHFBP47	858073	550	517 - 945	1955				AR055: 7, AR089: 6, AR033: 5, AR096: 5, AR104: 4, AR060: 4, AR061: 4, AR039: 3, AR052: 3, AR053: 3 L0748: 2, L0749: 2, H0085: 1, H0050: 1, H0090: 1 and L0758: 1.				7-31, 56- 73, 39-55
541	HKADE35	858104	551	66 - 593	1956	Thr-30 to Ala-35, Ala-72 to Trp-83, Thr-138 to Ala-151.			AR039: 8, AR089: 2, AR052: 2, AR061: 1, AR060: 1, AR096: 0, AR033: 0, AR104: 0 L0758: 9, L0748: 6, L0747: 6, L0779: 5, L0750: 4, H0556: 3, L0804: 3, H0658: 3, H0656: 2, L0770: 2, L0769: 2, L0774: 2, H0144: 2, H0648: 2, L0439: 2, L0749: 2, L0596: 2, H0265: 1, S0444: 1, H0318: 1, H0597: 1, H0050: 1,				95-130, 120-136

542	HCFAW88	858107	552	103 - 495	1957	Ser-122 to Trp-131.	H0024: 1, H0135: 1, H0090: 1, H0038: 1, H0616: 1, H0494: 1, L0065: 1, S0422: 1, H0529: 1, L0637: 1, L0764: 1, L0768: 1, L0794: 1, L0387: 1, L0803: 1, L0788: 1, L0790: 1, L0664: 1, L0438: 1, H0555: 1, L0780: 1, L0731: 1, H0444: 1, H0542: 1, H0543: 1 and H0423: 1. AR033: 3, AR089: 2, AR053: 2, AR055: 2, AR060: 2, AR104: 1, AR061: 1, AR096: 1, AR039: 1, AR052: 0 L0731: 9, L0803: 8, H0436: 6, L0740: 6, L0756: 6, L0805: 5, L0754: 5, L0783: 4, L0747: 4, L0749: 4, L0777: 4, H0556: 3, H0013: 3, L0771: 3, L0794: 3, L0774: 3, L0775: 3, L0809: 3, L0665: 3, L0757: 3, L0759: 3, L0599: 3, H0422: 3, H0341: 2, L0005: 2, S0046: 2, H0586: 2, H0427: 2, S0280: 2, H0201: 2, H0553: 2, H0040: 2, H0551: 2, T0042: 2, L0770:				67-88, 3- 30, 34-52, 96-123
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[illegible]



543	HISCV20	858108	553	123 - 1340	1958	Pro-58 to His-71, Thr-168 to His-174, Phe-177 to Lys-192, Gln-226 to Ser-234.	1, S0026: 1, H0136: 1, H0216: 1 and H0506: 1. AR060: 1, AR033: 1, AR089: 1, AR104: 1, AR061: 1, AR096: 0, AR053: 0, AR039: 0, AR052: 0, AR055: 0 L0752: 13, S0003: 11, L0754: 11, L0794: 9, H0521: 7, L0777: 6, H0250: 5, L0770: 5, L0766: 5, L0755: 5, S0242: 5, H0543: 5, H0046: 4, L0803: 4, L0804: 4, S0196: 4, H0556: 3, S0440: 3, H0529: 3, L0756: 3, L0599: 3, H0220: 2, H0638: 2, S0408: 2, H0486: 2, H0581: 2, S0214: 2, H0553: 2, H0652: 2, S0422: 2, L0771: 2, L0773: 2, L0775: 2, L0806: 2, L0805: 2, L0779: 2, H0542: 2, L0600: 2, H0656: 1, S0358: 1, S0360: 1, S0476: 1, H0393: 1, H0270: 1, L0021: 1, H0318: 1, H0421: 1, H0596: 1, H0572: 1, H0057: 1, H0373: 1, H0355: 1, H0375: 1, H0674: 1, H0090: 1, H0634: 1, H0646:				76-99, 314-332, 337-357, 383-400, 106-124, 141-157, 271-287, 242-258, 297-313
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544	HHEUE88	858214	554	478 - 1167	1959	Asn-5 to Glu-15.	1, L0769: 1, L0372: 1, L0764: 1, L0387: 1, L0784: 1, L0607: 1, L0659: 1, L0788: 1, L0666: 1, L0663: 1, S0148: 1, H0659: 1, H0651: 1, S0328: 1, H0539: 1, S0152: 1, H0478: 1, L0748: 1, L0740: 1, L0731: 1, L0759: 1, L0362: 1, H0422: 1 and S0424: 1. AR033: 2, AR060: 2, AR089: 1, AR061: 1, AR096: 1, AR039: 0, AR055: 0, AR052: 0, AR104: 0, AR053: 0 L0439: 5, H0592: 2, H0039: 2, H0494: 2, L0662: 2, L0659: 2, H0521: 2, L0748: 2, S0218: 1, H0657: 1, S0418: 1, S0376: 1, S0360: 1, H0580: 1, H0431: 1, H0333: 1, L0482: 1, H0581: 1, H0596: 1, H0050: 1, H0014: 1, H0622: 1, H0038: 1, L0564: 1, H0561: 1, S0422: 1, L0770: 1, L0800: 1, L0768: 1, L0803: 1, L0805: 1, L0776: 1, L0518: 1, L0352: 1, H0520: 1, L0779: 1, L0759: 1,						102-118
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545	HHESR56	858221	555	22 - 417	1960	Arg-44 to Gln-55.	<p>L0592: 1, L0593: 1, H0543: 1 and H0506: 1.</p> <p>AR053: 10, AR052: 10, AR089: 8, AR096: 7, AR033: 4, AR060: 3, AR061: 3, AR055: 2, AR104: 2, AR039: 0, S0410: 11, L0803: 4, L0659: 4, H0618: 3, H0135: 3, L0637: 3, L0809: 3, L0666: 3, H0696: 3, L0779: 3, S0376: 2, S0132: 2, H0592: 2, H0253: 2, H0050: 2, H0087: 2, H0560: 2, L0761: 2, S0374: 2, L0743: 2, L0751: 2, L0749: 2, L0731: 2, L0759: 2, H0542: 2, H0543: 2, H0171: 1, H0225: 1, H0341: 1, S0212: 1, H0483: 1, S0444: 1, S0408: 1, H0393: 1, L0717: 1, H0370: 1, H0249: 1, H0486: 1, H0101: 1, H0250: 1, H0706: 1, T0048: 1, H0581: 1, H0545: 1, H0009: 1, H0024: 1, H0271: 1, H0288: 1, H0617: 1, S0364: 1, H0163: 1, H0551: 1, H0488: 1, H0100: 1, H0494: 1, L4497: 1, L0770: 1,</p>				73-98, 8-26, 100-116
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546	HHENU62	858281	556	91 - 477	1961	Leu-115 to Pro-129.	L0769: 1, L5575: 1, L5565: 1, L3905: 1, L0646: 1, L0764: 1, L0766: 1, L0650: 1, L0774: 1, L0378: 1, L0788: 1, L0790: 1, L0664: 1, L0665: 1, S0126: 1, H0711: 1, S0330: 1, H0436: 1, S0392: 1, S0037: 1, L0742: 1, L0755: 1, L0758: 1, H0445: 1, H0653: 1 and H0423: 1.				28-61, 91-109, 9-25, 71-87
547	HE2RG38	858353	557	54 - 1151	1962	Met-1 to Glu-8, Glu-37 to Asp-58, Gln-75 to Leu-81.	AR096: 2, AR055: 1, AR089: 1, AR061: 0, AR060: 0, AR104: 0, AR039: 0 L0766: 2, L0749: 2, H0650: 1, H0581: 1, H0252: 1, H0538: 1, L0771: 1, L0809: 1, L0747: 1, L0757: 1 and H0543: 1. AR039: 2, AR104: 1, AR096: 1, AR061: 1, AR089: 1, AR060: 1, AR053: 0, AR033: 0, AR055: 0, AR052: 0 L0761: 8, L0806: 5, H0593: 5, H0436: 5, H0581: 4, H0052: 4, L0766: 4, H0521: 4, L0745: 4, L0731: 1				266-295, 243-266, 302-318, 82-98

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548	HCEVS49	858355	558	47 - 3001	1963	Met-1 to Ser-6, Leu-10 to Ser-17, Met-20 to Ser-25.	1, L4501: 1, L0663: 1, L0565: 1, H0519: 1, S0126: 1, H0689: 1, H0683: 1, H0684: 1, H0659: 1, H0670: 1, S0330: 1, S0380: 1, H0696: 1, H0134: 1, H0555: 1, L0609: 1, S0027: 1, S0028: 1, L0741: 1, L0743: 1, L0439: 1, L0777: 1, L0780: 1, S0434: 1, S0436: 1, H0216: 1, H0542: 1, H0423: 1 and H0506: 1. AR053: 4, AR089: 3, AR052: 3, AR096: 2, AR060: 1, AR033: 1, AR104: 1, AR061: 1, AR039: 0, AR055: 0 H0052: 8, L0439: 7, H0556: 6, H0618: 6, H0265: 5, L0758: 5, H0253: 4, L0764: 4, H0617: 3, S0152: 3, H0341: 2, S0420: 2, L0717: 2, H0559: 2, H0251: 2, H0620: 2, H0428: 2, H0135: 2, T0041: 2, L0809: 2, L0368: 2, L0665: 2, H0520: 2, H0547: 2, H0658: 2, L0744: 2, L0754: 2, L0591: 2, L0593: 2, L0601: 2, T0002: 1, H0686: 1,				673-697, 319-335, 635-651, 804-820, 438-454, 876-892
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549	HKGBP90	858433	559	229 - 834	1964	Leu-21 to Tyr-28.	S0040: 1, S0418: 1, S0358: 1, S0376: 1, H0261: 1, H0549: 1, H0550: 1, T0039: 1, H0318: 1, S0474: 1, H0194: 1, T0110: 1, H0046: 1, H0012: 1, S0051: 1, H0266: 1, H0181: 1, L0456: 1, H0040: 1, H0087: 1, H0100: 1, T0042: 1, H0494: 1, S0438: 1, S0002: 1, H0529: 1, L0772: 1, L0800: 1, L0662: 1, L0363: 1, L0794: 1, L0649: 1, L0803: 1, L0774: 1, L0375: 1, L0378: 1, L0658: 1, L0783: 1, L0790: 1, L0791: 1, L0792: 1, L0666: 1, S0148: 1, L0438: 1, L0352: 1, H0519: 1, H0670: 1, H0672: 1, H0521: 1, H0696: 1, S0044: 1, H0555: 1, H0436: 1, L0745: 1, L0747: 1, L0779: 1, L0731: 1, S0031: 1, H0445: 1, H0595: 1, L0608: 1, L0361: 1, H0665: 1, H0667: 1, H0542: 1, S0424: 1, H0008: 1 and H0352: 1.						S0040: 1, S0418: 1, S0358: 1, S0376: 1, H0261: 1, H0549: 1, H0550: 1, T0039: 1, H0318: 1, S0474: 1, H0194: 1, T0110: 1, H0046: 1, H0012: 1, S0051: 1, H0266: 1, H0181: 1, L0456: 1, H0040: 1, H0087: 1, H0100: 1, T0042: 1, H0494: 1, S0438: 1, S0002: 1, H0529: 1, L0772: 1, L0800: 1, L0662: 1, L0363: 1, L0794: 1, L0649: 1, L0803: 1, L0774: 1, L0375: 1, L0378: 1, L0658: 1, L0783: 1, L0790: 1, L0791: 1, L0792: 1, L0666: 1, S0148: 1, L0438: 1, L0352: 1, H0519: 1, H0670: 1, H0672: 1, H0521: 1, H0696: 1, S0044: 1, H0555: 1, H0436: 1, L0745: 1, L0747: 1, L0779: 1, L0731: 1, S0031: 1, H0445: 1, H0595: 1, L0608: 1, L0361: 1, H0665: 1, H0667: 1, H0542: 1, S0424: 1, H0008: 1 and H0352: 1.	AR096: 1, AR053: 1, AR089: 1, AR033: 1,			59-77, 87- 103, 142-
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								AR061: 1, AR060: 0, AR052: 0, AR055: 0, AR104: 0 H0266: 2, L0748: 2, L0777: 2, H0486: 1, H0373: 1, H0494: 1, S0014: 1, H0538: 1, L0803: 1, S0044: 1, L0740: 1, L0779: 1, L0759: 1, H0445: 1 and H0665: 1.				158, 186- 202
550	HOELK66	858436	560	105 - 1442	1965	His-87 to Glu-93, Pro-217 to Leu-222, Glu-224 to Lys-230, Val-264 to Trp-275, Phe-311 to Asn-316, Asp-344 to Gly-349, Gly-363 to Gln-379, Gly-398 to Gly-404, Gly-437 to Ser-446.	AR096: 20, AR089: 16, AR052: 13, AR053: 10, AR039: 9, AR104: 9, AR060: 8, AR055: 8, AR033: 6, AR061: 4 S0476: 2, H0713: 1, H0580: 1, S0045: 1, S0132: 1, H0599: 1, L0143: 1, H0551: 1, H0488: 1, S0126: 1, L0777: 1, L0731: 1, L0485: 1 and S0242: 1.				59-75, 232-248, 177-193	
551	HHFMX34	858449	561	69 - 686	1966	Ile-49 to Gln-55, Phe-57 to Ala-63.	AR096: 17, AR039: 14, AR089: 12, AR060: 11, AR055: 11, AR053: 10, AR033: 10, AR104: 9, AR052: 9, AR061: 5 H0556: 1, S0420: 1, S0358: 1, H0619: 1, H0373: 1, H0702: 1, S0027: 1,				106-123, 23-39	



552	HOUED48	858450	562	412 - 966	1967	Glu-46 to Arg-53.	H0423: 1 and H0422: 1. AR055: 6, AR052: 4, AR033: 4, AR053: 4, AR060: 3, AR061: 3, AR096: 2, AR089: 2, AR039: 2, AR104: 1 L0766: 13, L0439: 6, H0012: 3, H0266: 3, L0770: 3, L0761: 3, L0655: 3, H0650: 2, H0031: 2, L0653: 2, L0776: 2, L0751: 2, L0747: 2, H0171: 1, S0040: 1, S0024: 1, H0656: 1, S0282: 1, S0045: 1, S0132: 1, S0222: 1, L0021: 1, H0051: 1, H0271: 1, H0688: 1, H0383: 1, H0412: 1, L0769: 1, L0642: 1, L0775: 1, L0375: 1, L0659: 1, L0664: 1, L0665: 1, H0672: 1, H0521: 1, H0436: 1, S0027: 1, S0028: 1, S0206: 1, L0743: 1, L0750: 1, L0757: 1, L0758: 1, L0097: 1, H0423: 1, S0456: 1 and H0506: 1.	11			107-129, 62-78, 81- 97
553	HHBB126	858451	563	213 - 749	1968	Pro-8 to Leu-14.	AR033: 2, AR060: 2, AR053: 2, AR096: 2, AR039: 2, AR104: 1,				47-63

554	HHAUZ72	858492	564	216 - 626	1969	Thr-33 to Pro-39.	AR089: 1, AR055: 1, AR061: 1, AR052: 0 H0583: 1, H0650: 1, H0250: 1, H0599: 1, H0373: 1, H0266: 1, S0038: 1, S0044: 1, S0028: 1 and H0653: 1.					79-98, 39- 56, 15-31
555	HWMMAM4 1	858536	565	231 - 638	1970		AR096: 28, AR053: 10, AR039: 5, AR089: 5, AR052: 5, AR061: 3, AR055: 3, AR060: 2, AR033: 2, AR104: 2 S0007: 5, L0742: 5, L0731: 5, S0444: 4, L0769: 4, L0766: 4, L0740: 4, L0747: 4, L0749: 4, L0756: 4, L0596: 4, H0031: 3, L0065: 3, L0775: 3, L0809: 3, S0126: 3, L0759: 3, S0354: 2, H0438: 2, H0083: 2, L0371: 2, L0770: 2,					10-43, 111-132, 78-96, 39- 55

									L0772: 2, L0803: 2, L0776: 2, L0783: 2, H0555: 2, L0439: 2, L0755: 2, L0758: 2, L0591: 2, S0011: 2, H0556: 1, H0685: 1, H0656: 1, H0341: 1, S0418: 1, S0360: 1, H0331: 1, H0632: 1, H0013: 1, H0349: 1, H0546: 1, H0566: 1, S0022: 1, H0135: 1, H0040: 1, H0616: 1, S0386: 1, H0494: 1, S0438: 1, H0130: 1, H0646: 1, L0637: 1, L0761: 1, L0372: 1, L0800: 1, L0767: 1, L0794: 1, L0517: 1, L0647: 1, L0666: 1, L0663: 1, H0144: 1, T0068: 1, H0520: 1, H0690: 1, S0330: 1, H0521: 1, S3012: 1, L0777: 1, S0436: 1, H0543: 1 and H0352: 1.				
556	HCEOV70	858578	566	359 - 694	1971	Ser-9 to Arg-15.	AR055: 15, AR060: 13, AR033: 12, AR089: 9, AR104: 8, AR052: 8, AR061: 7, AR096: 7, AR039: 7, AR053: 6			77-93			
557	HKGDL95	858584	567	278 - 1690	1972		AR052: 6, AR096: 4, AR053: 4, AR060: 3,				49-66		

558	HSKGN12	858602	568	378 - 776	1973	Asp-28 to Trp-33, Gly-59 to Ser-71.	AR089: 3, AR033: 2, AR104: 2, AR061: 1, AR055: 1, AR039: 0 S0010: 3, L0731: 3, H0542: 2, S0134: 1, L0002: 1, S0418: 1, H0369: 1, H0486: 1, H0013: 1, S0280: 1, H0581: 1, S0049: 1, H0057: 1, S0022: 1, H0538: 1, H0529: 1, L0761: 1, L0667: 1, L0803: 1, L0653: 1, L0647: 1, L0793: 1, H0144: 1, L0355: 1, S0434: 1 and H0422: 1.				3-29, 33- 60, 76-98, 104-121
							AR055: 8, AR053: 6, AR104: 6, AR060: 6, AR033: 6, AR096: 5, AR052: 5, AR089: 4, AR061: 4, AR039: 3 L0748: 11, L0752: 5, S0003: 4, H0638: 3, L0747: 3, L0755: 3, L0759: 3, H0171: 2, T0114: 2, H0674: 2, S0422: 2, L0764: 2, L0766: 2, L0775: 2, L0740: 2, L0754: 2, L0749: 2, L0758: 2, H0170: 1, T0002: 1, H0295: 1, H0341: 1, S0212: 1, S0442: 1, S0444: 1, H0574: 1, H0156: 1,				

559	HCEGR84	858644	569	173 - 691	1974	Asn-30 to Cys-37.	H0575: 1, H0596: 1, H0530: 1, L0157: 1, H0123: 1, H0620: 1, S0388: 1, H0428: 1, H0031: 1, H0264: 1, S0014: 1, S0450: 1, H0529: 1, L0763: 1, L0770: 1, L0803: 1, L0804: 1, L0776: 1, L0655: 1, L0809: 1, S0052: 1, S0374: 1, H0520: 1, H0547: 1, S0122: 1, H0670: 1, H0648: 1, H0521: 1, S3014: 1, L0777: 1, L0780: 1, L0731: 1, H0445: 1, L0589: 1 and S0194: 1.			55-86, 90- 115, 123- 147, 10- 30, 45-61
						AR104: 18, AR052: 17, AR033: 16, AR053: 9, AR096: 8, AR089: 6, AR060: 5, AR039: 4, AR061: 4, AR055: 3 S0414: 17, L0758: 14, L0752: 13, L0740: 12, S0222: 11, L0439: 11, H0441: 8, H0052: 8, L0770: 8, L0777: 8, L0741: 7, S0010: 6, H0327: 6, S0036: 6, L0779: 6, H0620: 5, H0051: 5, L0803: 5, S0051: 4, H0644: 4, L0805: 4, L0809: 4, L0742: 4, L0744: 4, H0599: 3, H0059: 3,				

				L0768: 3, L0804: 3, L0774: 3, H0144: 3, S0330: 3, L0751: 3, L0754: 3, L0750: 3, S0412: 3, S0300: 2, H0438: 2, H0012: 2, S0050: 2, S0388: 2, T0010: 2, H0615: 2, H0553: 2, L0769: 2, L0794: 2, L0776: 2, L0789: 2, L0666: 2, L0663: 2, L0438: 2, L0743: 2, L0753: 2, L0755: 2, L0759: 2, S0031: 2, S0260: 2, L0608: 2, H0717: 1, H0716: 1, S6024: 1, S0282: 1, L0005: 1, S0007: 1, S0220: 1, H0586: 1, H0333: 1, H0013: 1, S0049: 1, H0050: 1, H0023: 1, H0399: 1, H0688: 1, H0040: 1, T0067: 1, S0386: 1, H0100: 1, S0039: 1, S0112: 1, L0351: 1, S0294: 1, S0440: 1, L0763: 1, L0800: 1, L0764: 1, L0662: 1, L0775: 1, L0651: 1, L0661: 1, L0807: 1, L0657: 1, L0793: 1, L0664: 1, H0520: 1, H0547: 1, H0593: 1, H0689: 1, H0670: 1, H0648: 1, H0696: 1, L0609: 1, L0747: 1,		
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560	HMIBL51	858727	570	817 - 1185	1975				L0756: 1, L0731: 1, S0434: 1 and S0021: 1. AR055: 17, AR033: 9, AR061: 9, AR060: 8, AR052: 8, AR089: 6, AR104: 5, AR096: 5, AR053: 5, AR039: 4 L0439: 3, H0455: 1, H0427: 1, H0575: 1, S0010: 1, H0390: 1, S0346: 1, L0163: 1, S6028: 1, H0428: 1, S0150: 1 and L0743: 1.				103-122, 6-22
561	HFXJP30	858754	571	32 - 946	1976	Trp-8 to Arg-14, Asp-74 to Gln-79, Ala-96 to Thr-104.			AR052: 12, AR053: 7, AR096: 6, AR089: 4, AR039: 4, AR104: 3, AR055: 3, AR060: 3, AR061: 3, AR033: 2 H0419: 3, S0282: 2, S0028: 2, H0717: 1, H0381: 1, L0105: 1, H0135: 1, S0052: 1 and S0044: 1. AR039: 5, AR033: 4, AR060: 4, AR096: 3, AR052: 3, AR089: 2, AR055: 2, AR104: 2, AR061: 2, AR053: 1 L0777: 4, L0751: 3, L0747: 3, H0661: 2, L0648: 2, L0561: 2, L0779: 2,				188-227, 269-293, 182-202, 50-72, 118-137, 153-170, 241-258, 14-30
562	HCHMP94	858877	572	85 - 603	1977	Asn-159 to Thr-173.			AR039: 5, AR033: 4, AR060: 4, AR096: 3, AR052: 3, AR089: 2, AR055: 2, AR104: 2, AR061: 2, AR053: 1 L0777: 4, L0751: 3, L0747: 3, H0661: 2, L0648: 2, L0561: 2, L0779: 2,				99-126, 19-37, 70- 86

563	HOHBO69	858909	573	76 - 378	1978	Met-1 to Ser-8, Gln-37 to Asn-42, Lys-47 to Glu-54, Glu-61 to Gly-69.	L0753: 2, S0342: 1, H0484: 1, S0358: 1, L0009: 1, H0411: 1, S0222: 1, S6014: 1, H0546: 1, H0123: 1, H0188: 1, S0366: 1, H0413: 1, H0494: 1, S0344: 1, H0529: 1, L0769: 1, L0627: 1, L0774: 1, L0378: 1, L0776: 1, L0655: 1, L0663: 1, S0148: 1, S0380: 1, H0478: 1, L0743: 1, L0439: 1, L0750: 1 and S0196: 1, AR096: 2, AR089: 1, AR104: 1, AR060: 1, AR061: 1, AR033: 1, AR055: 1, AR039: 0, AR052: 0, AR053: 0 S0126: 21, S0212: 14, S0250: 8, S0022: 8, S0028: 7, H0266: 6, S0040: 5, L0565: 4, S0420: 3, S0390: 3, L0740: 3, S0418: 2, H0550: 2, H0615: 2, H0622: 2, H0623: 2, S0208: 2, L0751: 2, L0777: 2, S0134: 1, S0180: 1, S0298: 1, S0360: 1, H0619: 1, H0486: 1, H0575: 1, H0544: 1, H0545: 1, H0050: 1, H0024: 1, H0551: 1, H0100: 1,	3q11.1- q13.2	600882	77-96	
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564	HBJHY72	858921	574	634 - 137	1979	Asn-7 to Arg-15, His-143 to Phe-148.	<p>S0015: 1, H0538: 1, L0598: 1, L0772: 1, L0800: 1, L0662: 1, L0649: 1, L0775: 1, H0519: 1, H0593: 1, S3014: 1, S0032: 1, L0757: 1, S0434: 1, H0653: 1, H0665: 1, H0667: 1, S0276: 1 and S0196: 1.</p> <p>AR052: 12, AR055: 8, AR053: 8, AR033: 6, AR089: 6, AR061: 6, AR060: 5, AR096: 1, AR104: 1, AR039: 0, L0794: 5, L0766: 3, L0759: 3, S0212: 2, H0318: 2, L0803: 2, L0804: 2, L0378: 2, L0665: 2, L0438: 2, L0439: 2, L0749: 2, L0591: 2, L0599: 2, L0362: 2, H0686: 1, S0342: 1, S0134: 1, H0656: 1, H0669: 1, S0358: 1, H0370: 1, H0069: 1, S0346: 1, H0251: 1, H0050: 1, H0373: 1, H0266: 1, S0022: 1, L0483: 1, H0553: 1, H0163: 1, H0090: 1, H0116: 1, H0509: 1, S0426: 1, H0529: 1, L0769: 1, L0638: 1, L0646: 1, L0648: 1, L0768: 1,</p>					89-106, 126-142, 56-72
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565	HWEAD78	858922	575	1026 - 2279	1980	Pro-54 to Tyr-61, Asp-132 to Leu-139, Ser-176 to Asp-183.	L0381: 1, L0375: 1, L0653: 1, L0659: 1, L0782: 1, L0809: 1, L0793: 1, H0691: 1, H0435: 1, H0659: 1, H0648: 1, S0152: 1, S0390: 1, S0027: 1, S0028: 1, L0777: 1, L0731: 1, S0260: 1, L0596: 1, S0192: 1 and S0424: 1.					243-259, 71-87, 318-334
							AR055: 183, AR096: 110, AR033: 22, AR061: 22, AR089: 21, AR060: 20, AR104: 18, AR039: 4, AR052: 4, AR053: 3 H0341: 2, S0045: 2, H0551: 2, H0556: 1, S0376: 1, H0619: 1, H0437: 1, H0601: 1, H0333: 1, H0485: 1, H0013: 1, H0635: 1, H0590: 1, H0318: 1, H0009: 1, H0266: 1, H0267: 1, S0003: 1, H0615: 1, H0644: 1, H0383: 1, H0068: 1, H0316: 1, H0116: 1, H0264: 1, H0561: 1, L0768: 1, L0794: 1, H0144: 1, H0436: 1, S0028: 1, L0744: 1, H0445: 1, H0542: 1 and S0424: 1.					

566	HFIBK06	858956	576	110 - 1213	1981	Arg-3 to Phe-10, Val-18 to Cys-23, His-64 to Tyr-73, Ser-181 to Gly-186, Glu-211 to Pro-221, Gly-284 to Ser-289, Thr-296 to Tyr-301, Phe-308 to Gly-318, Pro-321 to Asp-326.	AR039: 1, AR055: 1, AR089: 1, AR096: 0, AR061: 0, AR060: 0, AR053: 0, AR052: 0, AR104: 0, AR033: 0 S0192: 19, H0551: 9, S0002: 9, H0521: 9, L0740: 9, L0731: 8, S0152: 6, H0090: 5, H0547: 5, L0777: 5, S0360: 4, S0214: 4, S0144: 4, L0776: 4, L0747: 4, L0759: 4, L0596: 4, S0212: 3, S0278: 3, L0770: 3, L0766: 3, H0144: 3, S0126: 3, S0342: 2, S0418: 2, S0420: 2, S0046: 2, S0222: 2, H0497: 2, H0575: 2, H0327: 2, H0266: 2, S0250: 2, S0003: 2, H0031: 2, H0644: 2, H0040: 2, H0264: 2, H0623: 2, S0344: 2, L0598: 2, L0769: 2, L0662: 2, L0804: 2, L0775: 2, L0663: 2, L0565: 2, S0330: 2, S0028: 2, S0206: 2, L0439: 2, L0754: 2, L0750: 2, L0756: 2, L0752: 2, L0599: 2, S0276: 2, H0556: 1, S0040: 1, S0001: 1, S0282: 1, S0358: 1,			44-62, 144-160
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				S0376: 1, H0580: 1, H0619: 1, H0411: 1, H0409: 1, H0586: 1, H0587: 1, H0574: 1, L0622: 1, H0486: 1, T0039: 1, T0040: 1, T0109: 1, L0021: 1, T0082: 1, H0421: 1, H0194: 1, H0231: 1, H0544: 1, H0046: 1, H0024: 1, H0014: 1, H0051: 1, T0010: 1, S6028: 1, H0553: 1, H0628: 1, L0055: 1, H0383: 1, H0212: 1, H0124: 1, H0598: 1, H0038: 1, H0634: 1, H0268: 1, H0412: 1, H0056: 1, H0494: 1, H0625: 1, H0641: 1, H0633: 1, S0142: 1, S0210: 1, S0426: 1, H0529: 1, L0369: 1, L0372: 1, L0646: 1, L0374: 1, L0764: 1, L0768: 1, L0794: 1, L0803: 1, L0805: 1, L0652: 1, L0783: 1, L0664: 1, S0052: 1, H0519: 1, H0670: 1, H0672: 1, H0539: 1, L0602: 1, S0350: 1, S3012: 1, S0037: 1, S0032: 1, L0744: 1, L0751: 1, L0779: 1, L0753: 1, L0757: 1, S0434: 1, L0581: 1, L0593: 1,				
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567	HE9RF77	858957	577	150 - 974	1982	Arg-9 to Lys-26, Pro-79 to Asp-87, Arg-200 to Trp-219.	S0026: 1, H0136: 1, H0216: 1, H0542: 1, H0423: 1 and S0412: 1. AR055: 5, AR061: 5, AR096: 3, AR060: 3, AR033: 3, AR052: 3, AR053: 3, AR039: 2, AR089: 2, AR104: 1 L0777: 7, L0769: 6, L0771: 5, L0794: 5, L0805: 4, H0734: 3, H0031: 3, L0803: 3, L0740: 3, H0265: 2, S0360: 2, H0635: 2, H0318: 2, H0457: 2, S0364: 2, H0090: 2, L0662: 2, H0144: 2, L0748: 2, L0439: 2, L0755: 2, H0556: 1, H0713: 1, S6024: 1, H0341: 1, S0418: 1, S0356: 1, S0354: 1, S0376: 1, S0408: 1, S0410: 1, S0278: 1, H0370: 1, H0250: 1, L0021: 1, H0599: 1, H0575: 1, H0036: 1, H0052: 1, H0567: 1, L0471: 1, H0024: 1, H0083: 1, H0687: 1, S0003: 1, H0615: 1, H0030: 1, L0055: 1, H0591: 1, S0294: 1, H0647: 1, L0598: 1, L0667: 1, L0772: 1, L0646:				180-198, 136-152, 235-251
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568	HCEEU61	859028	578	341 - 3	1983				1, L0800: 1, L0768: 1, L0766: 1, L0386: 1, L0775: 1, L4501: 1, L0665: 1, H0519: 1, H0648: 1, H0521: 1, S0406: 1, H0576: 1, L0749: 1, L0779: 1, L0780: 1, L0752: 1, L0731: 1, L0757: 1, L0758: 1, L0591: 1, H0423: 1 and H0422: 1.				
									AR033: 8, AR104: 8, AR055: 4, AR061: 3, AR089: 2, AR039: 2, AR060: 2, AR052: 2, AR053: 1, AR096: 1, L0758: 4, L0769: 3, L0803: 3, H0295: 2, S0007: 2, L0438: 2, L0740: 2, L0757: 2, S0418: 1, S0420: 1, L0021: 1, H0706: 1, H0052: 1, S0250: 1, H0328: 1, H0213: 1, S0366: 1, L0662: 1, L0774: 1, L0659: 1, L0790: 1, L0664: 1, S0027: 1, L0741: 1, L0743: 1, L0756: 1, L0777: 1 and L0731: 1.				80-98
569	HOHBV41	859036	579	351 - 689	1984	Val-2 to Arg-12, His-21 to Ile-43.			AR096: 1, AR033: 1, AR061: 1, AR055: 0, AR060: 0, AR089: 0,	4p15.2			71-95

570	HHFKC41	859165	580	118 - 1341	1985	Met-1 to Gly-6, Arg-8 to Ala-19, Ser-32 to Ala-46, Ala-57 to Pro-76, Ala-78 to Arg-88, Thr-95 to Ser-104, Lys-126 to Glu-138.	AR039: 0, AR052: 0, AR053: 0 H0251: 1 and S0250: 1. AR096: 2, AR089: 2, AR033: 1, AR104: 1, AR060: 1, AR053: 1, AR052: 1, AR055: 1, AR061: 0, AR039: 0 L0745: 8, S0422: 5, H0615: 3, L0759: 3, H0543: 3, L0783: 2, L0666: 2, S0126: 2, L0604: 2, S0242: 2, H0170: 1, H0661: 1, S0418: 1, S0360: 1, H0619: 1, H0550: 1, H0123: 1, H0266: 1, S0312: 1, S0003: 1, H0551: 1, H0413: 1, T0042: 1, H0494: 1, S0440: 1, H0529: 1, L0771: 1, L0773: 1, L0803: 1, L0657: 1, H0690: 1, H0659: 1, L0754: 1, L0731: 1, L0757: 1, H0216: 1, S0276: 1 and S0196: 1.				352-378, 232-252, 307-324, 271-287
571	HMWGG4 4	859189	581	108 - 1124	1986	Gln-40 to Glu-45, Glu-96 to Glu-102, Asn-256 to Thr-266, Lys-311 to Ser-322.	AR089: 75, AR052: 35, AR060: 31, AR033: 29, AR053: 28, AR104: 20, AR061: 19, AR096: 16, AR055: 16, AR039: 14				1-28, 184- 201, 157- 173





572	HOEMM2 3	859190	582	131 - 496	1987	Tyr-10 to Asp-15, Asp-64 to Gly-72, Gln-74 to Lys-85, Gly-110 to Arg-122.	1, H0687: 1, S0003: 1, H0328: 1, T0023: 1, L0055: 1, H0165: 1, S0364: 1, S0366: 1, S0036: 1, L0564: 1, H0494: 1, L0475: 1, S0016: 1, H0560: 1, S0294: 1, S0438: 1, S0440: 1, H0509: 1, H0131: 1, S0150: 1, H0641: 1, S0422: 1, S0002: 1, L0520: 1, L0371: 1, L0796: 1, L0637: 1, L0761: 1, L0646: 1, L0800: 1, L0771: 1, L0648: 1, L0521: 1, L0363: 1, L0376: 1, L0378: 1, L0653: 1, L0384: 1, L0530: 1, L0787: 1, L0788: 1, S0053: 1, S0148: 1, H0689: 1, H0659: 1, S0378: 1, S0152: 1, H0522: 1, H0704: 1, S0044: 1, H0478: 1, H0727: 1, S3014: 1, L0756: 1, L0731: 1, L0758: 1, S0031: 1, S0434: 1 and S0276: 1. AR096: 2, AR104: 2, AR055: 1, AR089: 1, AR060: 1, AR033: 0, AR061: 0, AR052: 0 S0126: 4, H0271: 1, H0164: 1, S0028: 1 and				15-41, 41- 63, 86-109
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573	HTXPN78	859200	583	31 - 873	1988	Thr-116 to Gly-122, Lys-142 to Pro-150, Pro-164 to Ala-172, Glu-184 to Asn-189.	S0260: 1. AR052: 4, AR055: 3, AR053: 3, AR060: 2, AR033: 2, AR089: 2, AR061: 2, AR096: 1, AR104: 1, AR039: 0 S0126: 3, H0658: 3, H0556: 2, H0576: 2, L0600: 2, H0265: 1, S0360: 1, H0592: 1, H0051: 1, H0031: 1, H0135: 1, H0652: 1, L0641: 1, L0803: 1, L0375: 1, L0666: 1, H0547: 1, S0031: 1 and S0026: 1.				48-65, 121-137, 73-89
574	HFPGR87	859201	584	775 - 1125	1989	Glu-9 to Gly-14, Gln-75 to Val-81, Ser-94 to Gly-116.	AR033: 13, AR052: 6, AR104: 5, AR060: 4, AR055: 4, AR061: 4, AR053: 3, AR089: 3, AR096: 2, AR039: 1 L0748: 7, L0747: 6, L0805: 5, L0803: 4, L0776: 4, L0439: 4, L0757: 4, H0549: 3, L0794: 3, L0809: 3, L0750: 3, L0777: 3, H0624: 2, H0635: 2, H0012: 2, L0775: 2, L0744: 2, L0731: 2, S0276: 2, H0556: 1, S0114: 1, H0650: 1, H0255: 1, S0360: 1, L0394:	22q13.1	103050, 103050, 124030, 124030, 138981, 182380, 188826, 190040, 190040, 190040	51-73	

575	HE8PR67	859233	585	98 - 1402	1990	Pro-12 to Lys-33, Asn-41 to His-46, Pro-48 to Ser-58, Gly-71 to Asp-78, Ala-94 to Gly-102, Ser-133 to Ser-140, Arg-197 to Lys-202.	1, S0222: 1, H0441: 1, H0392: 1, H0333: 1, S0474: 1, H0052: 1, H0194: 1, H0235: 1, H0597: 1, H0231: 1, H0546: 1, H0150: 1, H0620: 1, H0328: 1, H0615: 1, H0674: 1, H0068: 1, H0135: 1, H0163: 1, L0497: 1, L0804: 1, L0661: 1, L0543: 1, L0791: 1, L5286: 1, H0144: 1, S0126: 1, H0696: 1, L0743: 1, L0749: 1, L0780: 1, L0752: 1, L0758: 1, S0031: 1, L0591: 1 and L0608: 1.				252-280, 319-342, 202-222, 157-173, 385-401, 174-190
						AR052: 8, AR055: 8, AR053: 6, AR096: 6, AR089: 5, AR060: 4, AR033: 4, AR039: 4, AR061: 3, AR104: 3 L0758: 4, S0358: 3, L0766: 3, H0038: 2, L0748: 2, L0754: 2, L0756: 2, L0759: 2, H0265: 1, H0223: 1, H0222: 1, H0159: 1, L0002: 1, S0116: 1, H0586: 1, T0040: 1, H0013: 1, H0052: 1, T0110: 1, L0157: 1, H0050: 1, H0266: 1, S0250: 1, S0364: 1, H0616:					

576	HDTDZ65	859250	586	35 - 2344	1991	Leu-55 to Phe-61, Arg-105 to Cys-111, Leu-152 to Glu-158, Glu-174 to Leu-187, Tyr-213 to Pro-223, Ala-246 to Asp-256, Leu-274 to Cys-283, Glu-297 to Tyr-302, Pro-322 to Leu-327, Asp-333 to Val-343, Thr-375 to Pro-382, Asp-403 to Ser-415, Thr-490 to Lys-496, Pro-531 to Asp-541, Arg-545 to Gly-551, Asp-582 to Ile-588, Asn-683 to Thr-713.	1, H0264: 1, H0509: 1, H0641: 1, L0646: 1, L0773: 1, L0662: 1, L0776: 1, L0655: 1, L0659: 1, L0809: 1, L0666: 1, L0664: 1, S0126: 1, S0380: 1, H0521: 1, L0779: 1, L0593: 1, S0242: 1 and L0697: 1.				727-762, 5-21, 556- 572
						AR089: 5, AR052: 2, AR060: 2, AR096: 2, AR055: 2, AR033: 1, AR039: 1, AR061: 1, AR104: 0, AR053: 0 S0192: 18, H0521: 7, L0659: 6, S0126: 6, L0744: 6, H0486: 5, L0666: 5, S0022: 4, L0438: 4, L0754: 4, S0194: 4, S0045: 3, L0662: 3, S0330: 3, L0758: 3, S0040: 2, H0661: 2, H0662: 2, S0132: 2, S0476: 2, H0392: 2, H0013: 2, H0575: 2, H0581: 2, S0250: 2, H0622: 2, H0553: 2, H0628: 2, H0591: 2, H0551: 2, H0623: 2, H0494: 2, S0002: 2, S0426: 2, L0771: 2, L0803: 2, L0527: 2, L0664: 2, L0665: 2, H0144: 2, S0027: 2, S0028: 2,					

	S0206: 2, L0740: 2, L0751: 2, H0595: 2, L0596: 2, H0506: 2, H0170: 1, T0049: 1, S0212: 1, H0638: 1, S0420: 1, S0442: 1, S0376: 1, S0468: 1, S0046: 1, S0278: 1, H0369: 1, H0592: 1, H0586: 1, S0010: 1, H0705: 1, H0310: 1, H0046: 1, T0010: 1, H0375: 1, H0266: 1, H0687: 1, S0214: 1, H0039: 1, L0483: 1, H0030: 1, H0031: 1, H0032: 1, S0366: 1, H0598: 1, H0038: 1, H0380: 1, H0268: 1, H0413: 1, H0056: 1, S0440: 1, H0652: 1, S0142: 1, S0344: 1, L0770: 1, L0638: 1, L0646: 1, L0649: 1, L0381: 1, L0806: 1, L0657: 1, L0658: 1, L0518: 1, L0809: 1, L0789: 1, H0682: 1, S0332: 1, H0696: 1, S0404: 1, S0406: 1, H0555: 1, H0627: 1, S0037: 1, S3014: 1, L0747: 1, L0755: 1, L0757: 1, L0588: 1, L0591: 1, S0026: 1, H0653: 1, H0665: 1 and S0196: 1.
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577	HWAEV63	859588	587	93 - 440	1992	Met-7 to Asp-22.	AR033: 5, AR096: 3, AR060: 3, AR052: 3, AR089: 3, AR053: 2, AR104: 1, AR061: 1, AR055: 1, AR039: 0 L0439: 6, L0659: 4, L0740: 4, L0752: 4, S0376: 3, L0731: 3, H0052: 2, L0471: 2, S0051: 2, H0428: 2, H0090: 2, L0803: 2, L0809: 2, H0423: 2, S0452: 2, H0624: 1, H0170: 1, H0663: 1, S0442: 1, S0045: 1, S0222: 1, H0331: 1, S0280: 1, L0021: 1, H0575: 1, H0004: 1, H0581: 1, H0457: 1, H0014: 1, S0388: 1, T0010: 1, H0083: 1, S6028: 1, S0318: 1, S0003: 1, H0688: 1, H0031: 1, H0553: 1, H0628: 1, L0055: 1, H0591: 1, H0038: 1, H0040: 1, H0268: 1, L0564: 1, S0210: 1, S0422: 1, L0598: 1, L0768: 1, L0794: 1, L0766: 1, L0774: 1, L0775: 1, L0518: 1, L0666: 1, L0664: 1, H0547: 1, H0659: 1, H0539: 1, S0380: 1, H0478: 1, H0479: 1,				46-74, 77- 98
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									L0779: 1, L0777: 1, L0755: 1, L0592: 1, L0599: 1, S0194: 1, S0276: 1, H0543: 1, S0424: 1 and H0506: 1.					
578	HOHAV17	859636	588	13 - 318	1993				AR052: 1, AR104: 1, AR089: 1, AR061: 1, AR055: 1, AR039: 0, AR033: 0, AR096: 0, AR060: 0, AR053: 0 S0250: 1 and H0547: 1.					62-94
579	HNTAW95	859688	589	198 - 875	1994	Cys-179 to Ser-189, Ala-216 to Tyr-223.			AR053: 2, AR096: 1, AR055: 1, AR033: 1, AR061: 1, AR089: 0, AR060: 0, AR104: 0, AR052: 0 H0046: 20, H0529: 3, L0439: 3, H0624: 2, H0038: 2, H0547: 2, L0588: 2, H0556: 1, H0484: 1, H0450: 1, H0619: 1, H0549: 1, H0550: 1, H0497: 1, T0040: 1, H0013: 1, H0599: 1, H0052: 1, H0050: 1, H0012: 1, H0551: 1, H0264: 1, H0494: 1, H0509: 1, H0538: 1, L0654: 1, H0520: 1, H0519: 1, S0126: 1, S0152: 1, S0332: 1, S0013: 1, S0027: 1, L0740: 1, H0445:					143-176, 66-93, 22-50, 106-125

580	HMCFL79	859704	590	1309 - 824	1995			1, L0592: 1, L0593: 1, L0595: 1 and H0506: 1. AR055: 11, AR053: 10, AR052: 8, AR096: 7, AR060: 7, AR089: 6, AR033: 6, AR061: 5, AR039: 5, AR104: 3 H0521: 7, L0748: 4, H0656: 3, H0586: 2, H0264: 2, L0740: 2, S0436: 2, H0542: 2, H0171: 1, T0002: 1, H0222: 1, S0040: 1, H0294: 1, S0134: 1, H0583: 1, S0212: 1, S0356: 1, S0045: 1, H0069: 1, H0318: 1, H0421: 1, H0052: 1, H0081: 1, H0050: 1, H0284: 1, H0428: 1, S0036: 1, H0551: 1, H0494: 1, S0144: 1, S0344: 1, L0807: 1, L0790: 1, H0547: 1, H0435: 1, H0539: 1, S0152: 1, S0028: 1, S0032: 1, L0750: 1, L0777: 1, L0759: 1, H0445: 1 and H0422: 1.		33-70, 78- 99, 7-24, 57-73, 117-133
581	HNTCT36	859756	591	103 - 630	1996	Met-1 to Lys-17, Asn-66 to Asn-95, Thr-100 to Tyr-106.		AR096: 5, AR089: 4, AR033: 4, AR060: 3, AR052: 1, AR061: 1, AR104: 0, AR053: 0		153-169



582	HTPDM61	859769	592	45 - 485	1997	Pro-30 to Arg-35, Glu-41 to Glu-51, Ser-54 to Trp-62, Gly-69 to Trp-77.	H0519: 2, H0156: 1, L0666: 1, L0665: 1, H0520: 1, L0758: 1 and L0759: 1. AR033: 10, AR055: 10, AR052: 8, AR089: 7, AR060: 7, AR053: 7, AR061: 6, AR096: 5, AR104: 3, AR039: 1 L0766: 3, L0731: 3, S0051: 2, L0769: 2, L0662: 2, L0768: 2, L0747: 2, H0140: 1, H0656: 1, S0418: 1, S0444: 1, H0013: 1, L0021: 1, H0046: 1, H0439: 1, H0615: 1, H0039: 1, H0551: 1, S0438: 1, S0144: 1, L0763: 1, L0372: 1, L0794: 1, L0805: 1, L0783: 1, L0809: 1, L0647: 1, L0788: 1, L0792: 1, L0663: 1, L0664: 1, H0691: 1, H0593: 1, L0750: 1 and L0758: 1.				74-97, 3- 19
583	HTFOH87	859792	593	389 - 745	1998	Pro-10 to Arg-15.	AR039: 1, AR096: 1, AR033: 1, AR061: 1, AR060: 0, AR089: 0, AR052: 0, AR055: 0, AR104: 0 L0769: 5, S0045: 2,	22q13.2- q13.31	188826, 250100, 250800, 250800	55-81, 36- 52, 84-100	

584	HWBDQ32	859796	594	284 - 760	1999	Leu-10 to Ser-20, Ala-49 to Gly-55, Ala-69 to Ala-74.	<p>L0773: 2, L0775: 2, L0783: 2, L0809: 2, H0657: 1, H0341: 1, H0254: 1, H0255: 1, S0360: 1, H0208: 1, H0550: 1, H0052: 1, H0123: 1, H0673: 1, H0412: 1, H0413: 1, L0640: 1, L0763: 1, L0768: 1, L0794: 1, L0661: 1, L0665: 1, H0691: 1, H0690: 1, S0378: 1, H0521: 1, L0750: 1, L0777: 1, L0759: 1, S0436: 1, L0366: 1, S0242: 1 and S0424: 1.</p> <p>AR096: 3, AR052: 3, AR053: 2, AR089: 2, AR033: 1, AR061: 1, AR060: 1, AR055: 1, AR104: 1, AR039: 0, L0745: 7, H0486: 4, L0764: 3, L0774: 3, L0779: 3, H0543: 3, H0130: 2, L0768: 2, L0766: 2, L0803: 2, L0542: 2, H0666: 2, H0672: 2, L0746: 2, L0755: 2, L0758: 2, L0596: 2, T0049: 1, H0657: 1, H0662: 1, S0358: 1, S0360: 1, H0580: 1, S0046: 1, S0222: 1, H0586: 1, H0013: 1,</p>				99-116
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585	HCHMO53	859797	595	199 - 660	2000	Arg-7 to Ala-14, Phe-113 to Arg-118, Pro-124 to His-129, Glu-145 to Ala-153.	L0021: 1, H0251: 1, H0266: 1, S0003: 1, S0214: 1, H0428: 1, H0535: 1, H0644: 1, H0674: 1, H0598: 1, H0038: 1, H0616: 1, H0268: 1, H0509: 1, S0002: 1, L0371: 1, L0770: 1, L0637: 1, L0372: 1, L0662: 1, L0550: 1, L0775: 1, L0375: 1, L0523: 1, L0526: 1, L0809: 1, L0663: 1, S0126: 1, H0435: 1, H0670: 1, H0539: 1, S0380: 1, H0522: 1, S0044: 1, H0345: 1, L0439: 1, L0740: 1, L0754: 1, L0750: 1, L0759: 1, H0445: 1 and L0603: 1. AR060: 16, AR052: 8, AR053: 7, AR033: 6, AR104: 6, AR089: 6, AR039: 5, AR061: 5, AR096: 4, AR055: 2 L0776: 8, L0731: 8, S0438: 6, L0752: 6, H0677: 6, S0410: 5, S0440: 5, L0764: 5, L0749: 5, T0049: 4, S0132: 4, L0766: 4, H0648: 4, L0759: 4, H0355: 3, L0519: 3, H0684: 3, L0748: 3, L0747: 3, L0757:					86-102, 54-70
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						3, H0449: 2, S0358: 2, S0376: 2, S0444: 2, H0392: 2, T0006: 2, H0477: 2, L0775: 2, L0806: 2, S0152: 2, H0436: 2, L0751: 2, L0750: 2, L0758: 2, S0436: 2, H0423: 2, H0624: 1, H0556: 1, H0157: 1, H0295: 1, H0294: 1, S0114: 1, H0657: 1, H0656: 1, H0484: 1, H0483: 1, S0356: 1, S0360: 1, S0408: 1, H0637: 1, S0007: 1, S0045: 1, H0391: 1, H0586: 1, H0497: 1, H0331: 1, H0485: 1, T0109: 1, T0048: 1, S0474: 1, L0040: 1, H0046: 1, S0051: 1, H0083: 1, H0606: 1, H0169: 1, H0316: 1, H0268: 1, H0412: 1, H0413: 1, T0042: 1, S0464: 1, H0633: 1, L0763: 1, L0770: 1, L0769: 1, L0638: 1, L0771: 1, L0648: 1, L5564: 1, L0381: 1, L0774: 1, L0378: 1, L0655: 1, L0659: 1, L0809: 1, L0788: 1, L0532: 1, H0682: 1, H0659: 1, S0328: 1, S0380: 1, S0350: 1, H0696: 1, S0406:
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									1, H0478: 1, H0479: 1, L0753: 1, S0434: 1, S0394: 1, L0592: 1, L0608: 1, H0668: 1, S0026: 1 and H0422: 1.				
586	HNHMC08	859848	596	10 - 1251	2001				AR055: 3, AR053: 2, AR060: 2, AR033: 2, AR061: 1, AR052: 1, AR096: 1, AR089: 1, AR104: 0, AR039: 0 S0278: 2, S0218: 1, S0045: 1 and S0216: 1.				383-406, 124-149, 8-35, 281- 302, 349- 368, 151- 171, 85- 104, 44- 62, 227- 245, 324- 340, 29- 45, 189- 205
587	HDPFH27	859875	597	95 - 1933	2002	Ser-27 to Pro-35, Thr-87 to Ile-99, Pro-106 to Lys-112, Glu-119 to Ser-130, Ser-182 to Val-187, Lys-194 to Tyr-204, Lys-295 to Val-300, Lys-384 to Glu-390, Thr-512 to Thr-526, Ser-530 to Glu-537, Gln-556 to Lys-562, Lys-593 to Leu-601.	AR060: 20, AR039: 19, AR055: 13, AR033: 13, AR053: 10, AR052: 9, AR089: 8, AR096: 7, AR104: 7, AR061: 4 H0521: 2	Xq25-q26	300037, 300076, 300123, 301201, 301845, 301900, 304340, 307150, 307700, 308000, 308000, 308230,			65-84, 302-318, 571-587, 130-146, 366-382, 492-508	

588	HE9QX59	859884	598	97 - 978	2003	Ser-49 to Ser-66, Asp-152 to Lys-160, Gly-186 to Asn-192, Arg-200 to Ser-205, Pro-223 to His-229, Gly-240 to Thr-250.	AR061: 14, AR052: 5, AR055: 3, AR033: 2, AR089: 2, AR060: 1, AR053: 1, AR096: 0, AR039: 0, AR104: 0 H0144: 1 and L0755: 1.	17q22-q24	308240, 309555, 310490, 312000, 313350, 313850	269-286, 163-179, 103-119
									109270, 109270, 109270, 109270, 109270, 109270, 115660, 120150, 120150, 120150, 139250, 148065, 148080, 148500, 150200, 154275, 162100, 170500, 170500, 170500, 171190, 176960, 182452, 185800, 221820,	

589	HNFBU66	859891	599	953 - 537	2004	Thr-26 to Lys-32, Asn-98 to Pro-105, Arg-133 to Thr-139.	AR089: 15, AR096: 15, AR052: 14, AR053: 12, AR060: 12, AR055: 11, AR104: 11, AR039: 10, AR033: 9, AR061: 6 H0171: 2, H0624: 1, S0222: 1, H0271: 1, S0390: 1, S0028: 1, L0786: 1 and S0031: 1.	230200, 249000, 253250, 600525, 600852, 601844	71-88	
590	HLDQW16	859895	600	906 - 1214	2005	Thr-33 to Thr-40, Lys-86 to Lys-103.	AR039: 9, AR096: 8, AR053: 8, AR089: 7, AR052: 6, AR033: 5, AR055: 4, AR104: 4, AR060: 4, AR061: 2 L0766: 6, L0770: 3, H0632: 2, H0013: 2, L0483: 2, L0775: 2, L0663: 2, H0521: 2, L0759: 2, L0362: 2, S0354: 1, S0358: 1, H0486: 1, H0003: 1, H0318: 1, H0544: 1, H0457: 1, H0510: 1, H0428: 1, L0371: 1, L0521: 1, L0512: 1,	51-68, 4- 21		

591	HTLGS48	859918	601	726 - 1436	2006	Met-1 to Trp-10, Gln-12 to Thr-37.	L0783: 1, L0664: 1, H0593: 1, H0365: 1, H0659: 1, H0658: 1, H0672: 1, S0378: 1, L0756: 1, L0758: 1, H0445: 1, L0480: 1 and L0599: 1. AR055: 8, AR033: 6, AR060: 5, AR089: 5, AR104: 4, AR039: 4, AR052: 4, AR053: 4, AR061: 4, AR096: 4 H0618: 7, L0747: 6, L0439: 5, H0617: 3, L0766: 3, L0438: 3, H0580: 2, H0328: 2, L0783: 2, H0694: 2, S0434: 2, H0717: 1, S0442: 1, S0360: 1, S0408: 1, H0208: 1, S0045: 1, H0261: 1, H0550: 1, H0586: 1, H0333: 1, H0559: 1, H0486: 1, H0253: 1, T0048: 1, H0546: 1, T0003: 1, H0024: 1, H0373: 1, H0399: 1, H0292: 1, H0135: 1, L5565: 1, L0761: 1, L0630: 1, L0767: 1, L0375: 1, L0653: 1, L0655: 1, L0807: 1, L0787: 1, H0547: 1, H0672: 1, H0576: 1, L0748: 1, L0786: 1, L0758: 1,				43-64, 199-218, 119-135
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592	HNHDI54	859973	602	235 - 546	2007			L0759: 1, S0011: 1 and H0423: 1. AR055: 9, AR060: 6, AR033: 5, AR061: 5, AR052: 4, AR039: 3, AR089: 3, AR096: 3, AR053: 3, AR104: 0 S0053: 2				70-96
593	HAPPS75	860023	603	1221 - 190	2008	Arg-55 to Gly-61.		AR039: 38, AR033: 23, AR096: 21, AR104: 20, AR052: 18, AR089: 17, AR053: 15, AR061: 14, AR055: 14, AR060: 13 H0581: 3, H0522: 3, L0747: 3, H0662: 2, H0553: 2, H0641: 2, S0053: 2, H0689: 2, H0521: 2, L0748: 2, L0731: 2, L0759: 2, H0543: 2, H0294: 1, H0657: 1, H0656: 1, S0418: 1, S0358: 1, H0208: 1, H0619: 1, H0586: 1, H0587: 1, H0427: 1, H0599: 1, H0575: 1, H0052: 1, H0545: 1, H0009: 1, H0081: 1, H0510: 1, H0266: 1, H0212: 1, H0211: 1, H0090: 1, H0100: 1, T0042: 1, H0494: 1, H0646: 1, L0770: 1, L0659:				255-271, 107-123

								1, H0519: 1, S0037: 1, L0741: 1, L0750: 1, L0777: 1, H0445: 1, L0596: 1 and H0542: 1.				
594	HWLEL47	860167	604	222 - 566	2009	Met-1 to Arg-6, Pro-24 to Ile-30.	AR096: 1, AR060: 1, AR055: 1, AR089: 1, AR104: 1, AR061: 1, AR033: 1, AR039: 0, AR052: 0, AR053: 0 S0354: 1 and S0428: 1.					88-105, 35-51
595	HNGJG75	860381	605	183 - 662	2010	Ser-13 to His-18, Phe-90 to Asp-100, Ser-118 to Thr-143.	AR055: 6, AR060: 4, AR052: 3, AR089: 3, AR033: 3, AR061: 3, AR053: 2, AR104: 2, AR039: 2, AR096: 1 S0052: 1					36-56
596	HKAJU40	860461	606	89 - 676	2011	Gln-96 to Glu-102, Asn-108 to Val-113, Gly-154 to Tyr-159.	AR052: 9, AR061: 8, AR053: 7, AR060: 6, AR039: 5, AR033: 5, AR096: 5, AR055: 5, AR089: 4, AR104: 4 H0038: 3, H0265: 2, H0341: 2, H0543: 2, H0556: 1, S0116: 1, S0212: 1, H0664: 1, S0376: 1, H0393: 1, H0370: 1, H0592: 1, H0013: 1, L2250: 1, H0544: 1, H0046: 1, H0012: 1, H0083: 1, S0214: 1, H0031:	17p13.1	191170, 191170		174-190, 7-23, 70- 86	

597	HYABL83	860565	607	1473 - 1012	2012	Val-43 to Gly-48, Leu-118 to Leu-128.	1, S0364: 1, H0494: 1, S0440: 1, H0509: 1, H0633: 1, S0144: 1, H0529: 1, L0372: 1, L0766: 1, S0126: 1, L0602: 1, S0152: 1, H0522: 1, H0576: 1, L0779: 1, H0665: 1 and H0216: 1. AR089: 3, AR033: 2, AR096: 2, AR039: 2, AR060: 2, AR061: 1, AR055: 0, AR053: 0, AR052: 0, AR104: 0 L0754: 5, L0744: 4, L0659: 3, L0439: 3, L0747: 3, L0777: 3, S6024: 2, H0661: 2, H0645: 2, L0794: 2, L0766: 2, L0803: 2, H0144: 2, L0748: 2, L0759: 2, L0605: 2, H0556: 1, H0583: 1, S0212: 1, H0663: 1, S0354: 1, H0619: 1, S0222: 1, H0441: 1, H0586: 1, H0333: 1, L0021: 1, H0575: 1, H0590: 1, H0318: 1, H0050: 1, L0163: 1, H0510: 1, H0266: 1, H0622: 1, H0030: 1, H0644: 1, H0032: 1, H0135: 1, H0551: 1, T0041: 1, H0509: 1, S0150: 1, H0647: 1, H0646:					57-86, 20- 43, 127- 145
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598	HKADF82	860617	608	234 - 536	2013	Glu-6 to Glu-16.	1, S0344: 1, S0426: 1, L0598: 1, H0529: 1, L0762: 1, L0796: 1, L0372: 1, L0804: 1, L0774: 1, L0805: 1, L0656: 1, L0809: 1, L0666: 1, L0438: 1, H0547: 1, H0519: 1, H0683: 1, H0435: 1, H0659: 1, H0660: 1, H0696: 1, S0028: 1, L0742: 1, L0745: 1, L0746: 1, L0752: 1, L0757: 1, L0480: 1, L0591: 1, H0653: 1, S0192: 1, H0423: 1 and H0422: 1. AR060: 2, AR053: 1, AR061: 1, AR033: 0, AR055: 0, AR096: 0, AR039: 0 H0144: 3, S0007: 2, H0550: 2, H0494: 2, L0794: 2, L0633: 2, L0666: 2, L0665: 2, S0330: 2, H0478: 2, S0040: 1, H0661: 1, H0637: 1, H0549: 1, H0431: 1, S0280: 1, H0575: 1, H0051: 1, H0355: 1, H0594: 1, H0288: 1, L0483: 1, H0644: 1, H0038: 1, H0616: 1, H0509: 1, H0517: 1, L0662: 1, L0791: 1, L0663:				
											72-89

599	HNGEK43	860646	609	29 - 430	2014	Pro-16 to Cys-28, Val-79 to Gly-84.	1, L0664: 1, H0703: 1, L0438: 1, H0547: 1, H0711: 1, H0518: 1, S0044: 1, H0214: 1, L0439: 1, L0751: 1, L0731: 1 and H0423: 1.					91-107	
600	HTAJS93	860849	610	36 - 1160	2015	Tyr-42 to Gly-48, Ser-62 to Arg-83, Asp-137 to Pro-148, Ser-201 to Arg-207.	AR061: 2, AR055: 2, AR089: 1, AR096: 1, AR033: 1, AR053: 1, AR060: 1, AR039: 0, AR104: 0 S0052: 2 and H0393: 1. AR096: 31, AR089: 24, AR033: 14, AR060: 14, AR052: 13, AR053: 13, AR039: 13, AR055: 10, AR061: 6, AR104: 5 L0731: 27, L0662: 10, S0360: 8, L0666: 8, L0659: 7, L0758: 7, S0358: 6, S0003: 6, L0803: 6, L0748: 6, L0747: 6, L0779: 6, L0752: 6, S0132: 5, L0664: 5, L0744: 5, L0754: 5, S0040: 4, H0662: 4, H0411: 4, H0251: 4, H0597: 4, L0471: 4, H0024: 4, S0022: 4, L0809: 4, L0663: 4, L0439: 4, L0749: 4, L0756: 4, L0362: 4, L0002: 3,					344-371, 169-200, 313-340, 275-302, 15-42, 146-167, 119-135, 11-17, 210- 227, 237- 253	

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601	HE9PJ48	861223	611	131 - 1549	2016	Thr-9 to Asn-16, Thr-59 to Trp-70, Pro-92 to His-97, Thr-345 to Gly-351, Tyr-409 to Pro-426, Arg-433 to Val-466.	H0644: 1, H0673: 1, S0364: 1, S0366: 1, H0591: 1, H0634: 1, H0412: 1, H0413: 1, H0100: 1, S0112: 1, T0041: 1, H0494: 1, H0641: 1, H0646: 1, S0208: 1, L0763: 1, L0372: 1, L0771: 1, L0648: 1, L0768: 1, L0364: 1, L0794: 1, L0774: 1, L0379: 1, L0512: 1, L0647: 1, L0788: 1, L0665: 1, S0374: 1, L0438: 1, H0684: 1, H0672: 1, S0330: 1, S0380: 1, S0152: 1, H0579: 1, H0522: 1, S0013: 1, S0146: 1, H0631: 1, S0432: 1, S0037: 1, L0745: 1, L0750: 1, L0777: 1, L0757: 1, H0444: 1, L0596: 1, L0597: 1, L0591: 1, S0011: 1, S0026: 1, S0192: 1, H0422: 1 and H0008: 1.				66-93, 98- 125, 374- 405, 351- 371, 41- 58, 217- 235, 166- 182, 286- 302, 318-
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[illegible]



602	HPRBC95	861227	612	524 - 853	2017	Gly-88 to Ser-94, Glu-98 to Tyr-110.	<p>S0440: 1, S0150: 1, H0633: 1, S0210: 1, H0529: 1, L0520: 1, L0763: 1, L0770: 1, L0761: 1, L0772: 1, L0646: 1, L0641: 1, L0764: 1, L0521: 1, L0662: 1, L0775: 1, L0806: 1, L0657: 1, L0783: 1, L0792: 1, L0663: 1, L0665: 1, L0352: 1, H0689: 1, H0684: 1, H0648: 1, H0521: 1, H0522: 1, H0704: 1, S0406: 1, H0187: 1, H0576: 1, S0037: 1, S0028: 1, L0740: 1, L0751: 1, L0752: 1, L0757: 1, L0590: 1, L0485: 1, L0595: 1, H0665: 1, H0136: 1, H0216: 1 and S0424: 1.</p> <p>AR055: 11, AR033: 9, AR089: 7, AR060: 6, AR104: 6, AR052: 5, AR096: 5, AR053: 5, AR061: 5, AR039: 4, L0439: 4, L0754: 3, L0758: 3, L0809: 2, L0666: 2, L0438: 2, L0757: 2, S0358: 1, S0376: 1, S0360: 1, H0730: 1, H0351: 1, H0411: 1, S0222: 1, T0039: 1, H0581: 1, H0545: 1,</p>						62-80, 20-39
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603	HDPUM54	861242	613	14 - 466	2018	Thr-89 to Gly-97, Ser-100 to Thr-108.	H0050: 1, S0318: 1, S0334: 1, H0032: 1, L0351: 1, L0763: 1, L0770: 1, L0774: 1, L0775: 1, L0659: 1, L0789: 1, H0365: 1, L0779: 1, L0777: 1, L0755: 1, H0444: 1, S0436: 1 and S0196: 1. AR096: 3, AR039: 3, AR053: 1, AR052: 1, AR033: 1, AR061: 1, AR089: 1, AR060: 0, AR055: 0 L0754: 12, L0748: 11, H0521: 9, L0770: 5, L0740: 5, L0747: 5, L0756: 5, L0766: 4, H0591: 3, S0002: 3, L0744: 3, H0457: 2, H0428: 2, H0090: 2, L0523: 2, L0654: 2, L0659: 2, L0438: 2, H0435: 2, L0439: 2, H0445: 2, L0599: 2, S0026: 2, H0542: 2, H0556: 1, H0450: 1, S0420: 1, H0586: 1, H0013: 1, S0280: 1, H0421: 1, H0596: 1, H0046: 1, H0123: 1, H0083: 1, H0266: 1, H0553: 1, H0628: 1, L0055: 1, H0316: 1, S0426: 1, L0761: 1,	I6q12-q13	114835, 132700, 172490, 600968	50-75, 31- 52	
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604	HHFLL92	861294	614	717 - 1103	2019	Ala-24 to Arg-29, Arg-82 to Gln-89.	L0771: 1, L0768: 1, L0803: 1, L0774: 1, L0776: 1, L0655: 1, L0790: 1, L0792: 1, L0666: 1, H0144: 1, H0670: 1, H0518: 1, H0579: 1, L0749: 1, L0779: 1, L0755: 1, L0758: 1, L0759: 1, L0596: 1, S0192: 1, S0194: 1 and S0276: 1. AR089: 8, AR055: 7, AR060: 6, AR052: 6, AR033: 6, AR061: 5, AR096: 5, AR053: 4, AR039: 3, AR104: 3 L0779: 9, L0483: 6, L0748: 6, H0556: 5, H0264: 5, L0766: 5, L0740: 5, L0750: 5, L0769: 4, L0659: 4, L0663: 4, L0754: 4, L0758: 4, L0593: 4, S0114: 3, H0656: 3, L0717: 3, H0622: 3, H0673: 3, H0436: 3, L0747: 3, L0777: 3, L0731: 3, H0445: 3, L0596: 3, L0718: 3, H0402: 2, S0442: 2, H0619: 2, H0393: 2, S0280: 2, H0081: 2, H0050: 2, H0024: 2, H0271: 2, H0135: 2, L0637: 2, L0768: 2, L0794: 2, L0561:					95-112, 38-54
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605	HIMCHK65	861307	615	51 - 563	2020		1, L0761: 1, L0764: 1, L0662: 1, L0375: 1, L0806: 1, L0776: 1, L0518: 1, L0809: 1, L0788: 1, L0790: 1, L0666: 1, L0665: 1, S0052: 1, S0374: 1, L0438: 1, H0519: 1, H0593: 1, H0689: 1, H0659: 1, H0660: 1, H0651: 1, S0328: 1, H0539: 1, H0518: 1, S0152: 1, S0044: 1, H0576: 1, S0432: 1, H0345: 1, S012: 1, S0390: 1, S3014: 1, S0027: 1, L0744: 1, L0780: 1, L0759: 1, L0589: 1, L0599: 1, H0667: 1, S0276: 1, H0543: 1, H0423: 1, S0458: 1, UNKWN: 1 and H0352: 1.				118-139, 151-167, 93-110, 63-79, 35- 51
							AR053: 1, AR060: 1, AR104: 1, AR089: 1, AR055: 1, AR033: 0, AR061: 0, AR096: 0, AR039: 0, AR052: 0 L0766: 6, L0748: 6, L0740: 6, L0776: 4, H0521: 3, S0358: 2, H0266: 2, S0003: 2, S0344: 2, L0638: 2, L0805: 2, L0438: 2, S0380: 2, L0754: 2, L0747:				

606	HAIDK89	861328	616	1422 - 2093	2021	Ser-43 to Ala-48, Ser-72 to Leu-78, Ala-100 to Ala-107, Ser-109 to Ile-115, Arg-166 to Asn-171.	2, L0752: 2, L0755: 2, L0362: 2, H0624: 1, L0005: 1, H0580: 1, S0045: 1, S0046: 1, H0575: 1, S0010: 1, H0553: 1, H0269: 1, T0042: 1, S0150: 1, L0369: 1, L0770: 1, L0761: 1, L0794: 1, L0656: 1, L0787: 1, L0789: 1, L0665: 1, H0670: 1, H0660: 1, S0152: 1, L0439: 1, L0749: 1, L0779: 1, L0777: 1, L0759: 1, H0445: 1, H0343: 1, L0591: 1, S0192: 1 and H0543: 1.				186-223, 171-188
						AR033: 4, AR060: 3, AR096: 3, AR089: 2, AR039: 1, AR053: 1, AR104: 1, AR061: 1, AR055: 1, AR052: 0 L0438: 7, L0740: 4, H0416: 3, L0803: 3, L0777: 3, S0005: 2, H0544: 2, H0271: 2, H0090: 2, H0038: 2, H0551: 2, S0440: 2, L0766: 2, L0809: 2, H0436: 2, L0748: 2, L0439: 2, L0754: 2, L0758: 2, L0366: 2, H0265: 1, H0556: 1, H0583: 1, H0656: 1, H0341:					

607	HTOHL88	861361	617	1389 - 478	2022	Ser-25 to Gly-48, Phe-83 to Asp-91, Pro-110 to His-123, Lys-134 to Thr-139.	1, S0360: 1, S0408: 1, S0132: 1, S0476: 1, H0550: 1, S0222: 1, H0632: 1, H0492: 1, H0013: 1, L0021: 1, H0599: 1, S0049: 1, H0123: 1, H0375: 1, H0266: 1, H0622: 1, H0553: 1, H0383: 1, H0135: 1, H0040: 1, H0616: 1, H0087: 1, S0426: 1, L0769: 1, L0641: 1, L0644: 1, L0771: 1, L0773: 1, L0662: 1, L0768: 1, L0655: 1, L0665: 1, H0682: 1, H0696: 1, H0478: 1, L0749: 1, L0780: 1, L0759: 1 and H0422: 1.	7q33	180105, 222800	257-287, 173-200, 220-241, 88-108, 52-70, 202-218, 1-17, 138- 154	
608	HMEKU54	861611	618	215 - 586	2023		AR055: 9, AR033: 6, AR060: 5, AR061: 5, AR052: 4, AR089: 3, AR096: 3, AR053: 2, AR104: 1, AR039: 0 L0603: 4, H0031: 3, S0010: 2, T0010: 2, L0438: 2, H0038: 1, H0616: 1, H0264: 1, S0426: 1, H0539: 1 and L0439: 1.			56-83, 86- 104	

				AR033: 3, AR053: 3, AR039: 1, AR104: 0 L0769: 7, L0754: 7, H0657: 4, L0764: 4, L0751: 4, S0408: 3, S0222: 3, H0327: 3, H0046: 3, H0056: 3, L0756: 3, L0752: 3, S0282: 2, S0356: 2, S0444: 2, H0580: 2, H0250: 2, H0622: 2, H0625: 2, L0803: 2, L0666: 2, H0648: 2, H0672: 2, S0380: 2, S0146: 2, L0745: 2, L0747: 2, L0777: 2, L0731: 2, L0600: 2, H0556: 1, H0740: 1, H0305: 1, H0125: 1, S0410: 1, H0637: 1, S0476: 1, H0393: 1, H0586: 1, H0643: 1, H0486: 1, H0013: 1, H0635: 1, H0599: 1, H0575: 1, S0346: 1, H0318: 1, S0474: 1, H0052: 1, H0024: 1, H0266: 1, H0271: 1, H0188: 1, H0286: 1, H0615: 1, H0124: 1, H0135: 1, H0634: 1, H0264: 1, T0042: 1, H0132: 1, H0641: 1, H0652: 1, S0422: 1, L0639: 1, L0771: 1, L0773: 1, L0662: 1, L0766: 1, L0774:								
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609	HOQBR51	861620	619	613 - 1017	2024	Gly-35 to Arg-41, Lys-51 to Phe-62, Pro-89 to Gln-94.	1, L0776: 1, L0655: 1, L0659: 1, L0809: 1, L0367: 1, H0547: 1, H0670: 1, H0521: 1, H0696: 1, S0404: 1, S0406: 1, L0748: 1, L0740: 1, L0749: 1, L0779: 1, L0755: 1, L0759: 1, S0434: 1, S0026: 1, H0653: 1, H0667: 1, S0242: 1, S0412: 1, H0506: 1 and : 1. AR039: 51, AR104: 25, AR033: 23, AR096: 17, AR055: 17, AR053: 14, AR089: 14, AR052: 13, AR060: 12, AR061: 8 L0592: 3, H0592: 2, L0769: 2, L0657: 2, L0742: 2, L0749: 2, L0731: 2, L0758: 2, L0759: 2, S0010: 1, H0150: 1, H0009: 1, H0290: 1, H0644: 1, S0038: 1, H0494: 1, H0633: 1, L0771: 1, L0775: 1, L0776: 1, L0636: 1, L0809: 1, L0777: 1 and L0366: 1.				105-131
610	HAMGP34	861668	620	32 - 1135	2025	Tyr-132 to Tyr-140, Cys-143 to Ser-154, Gly-252 to Thr-259, Glu-296 to Ala-302,	AR096: 1, AR089: 1, AR060: 1, AR033: 1, AR055: 1, AR039: 1, AR061: 1, AR104: 0,				22-57, 59- 89, 204- 231, 1-20, 326-342

611	HHEL	G22	861683	621	184 - 918	2026	Gln-311 to His-326, Pro-361 to Leu-368.	AR052: 0, AR053: 0 S0474: 22, H0556: 3, H0012: 3, H0521: 3, L0777: 3, H0638: 2, S0344: 2, L0769: 2, L0766: 2, L0803: 2, L0774: 2, L0375: 2, L0809: 2, L0748: 2, L0745: 2, L0747: 2, L0756: 2, L0779: 2, L0731: 2, H0484: 1, S0420: 1, H0722: 1, H0550: 1, H0592: 1, H0318: 1, H0081: 1, H0620: 1, H0673: 1, H0674: 1, H0560: 1, L0770: 1, L0638: 1, L0764: 1, L0804: 1, L0775: 1, L0655: 1, L0493: 1, L0659: 1, L0783: 1, L4501: 1, L0664: 1, L0438: 1, H0547: 1, S0328: 1, H0518: 1, L0746: 1, L0749: 1, H0445: 1, S0436: 1 and H0542: 1.				78-94, 46- 62
							Arg-8 to Val-14, Tyr-25 to Arg-32, Cys-38 to Trp-44, His-70 to Ser-75, Glu-100 to Glu-106, Gly-117 to His-127, Gln-130 to Ser-136, Ser-167 to Ala-172,	AR104: 28, AR033: 17, AR089: 11, AR060: 10, AR096: 10, AR053: 9, AR052: 7, AR039: 7, AR055: 3, AR061: 2 L0731: 11, L0439: 10, L0752: 6, L0779: 5, H0046: 4, H0494: 4, L0770: 4,				

Pro-184 to Ile-197, Glu-201 to Ser-209, Thr-215 to Val-222, Arg-228 to Glu-245.	L0766: 4, L0774: 4, S0010: 3, S0036: 3, L0764: 3, L0771: 3, L0803: 3, L0657: 3, L0748: 3, L0759: 3, H0542: 3, H0657: 2, S0360: 2, H0009: 2, H0562: 2, H0050: 2, L0363: 2, L0768: 2, L0550: 2, L0776: 2, L0655: 2, L0659: 2, H0648: 2, L0740: 2, L0754: 2, L0756: 2, L0758: 2, L0588: 2, H0136: 2, H0265: 1, H0686: 1, S0116: 1, H0341: 1, H0638: 1, S0418: 1, S0356: 1, S0358: 1, S0046: 1, S0222: 1, H0497: 1, H0333: 1, H0486: 1, H0013: 1, H0427: 1, H0156: 1, H0599: 1, H0581: 1, H0309: 1, H0327: 1, S0312: 1, S0214: 1, L0055: 1, H0038: 1, H0634: 1, H0433: 1, L0370: 1, S0438: 1, H0646: 1, S0002: 1, L0598: 1, H0529: 1, L0451: 1, L0769: 1, L0639: 1, L0637: 1, L5575: 1, L0630: 1, L0800: 1, L0662: 1, L0381: 1, L0775: 1, L0651: 1, L0653: 1, L0661: 1, L0809: 1,
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612	HDP75	861707	622	219 - 773	2027				L0532: 1, L0664: 1, L0665: 1, H0701: 1, S0122: 1, H0365: 1, H0539: 1, S0152: 1, H0555: 1, L0745: 1, L0777: 1, L0755: 1, L0757: 1, H0445: 1, S0436: 1, L0592: 1, L0608: 1, L0595: 1, L0362: 1, L0361: 1, S0026: 1, S0242: 1, H0422: 1 and S0424: 1.					6-38, 147-176, 111-137, 79-95
									AR052: 6, AR053: 5, AR096: 4, AR060: 3, AR033: 3, AR089: 3, AR039: 3, AR055: 3, AR061: 2, AR104: 2, L0731: 7, L0748: 5, L0599: 5, L0775: 4, H0521: 4, L0740: 4, L0766: 3, L0774: 3, L0747: 3, S0026: 3, H0069: 2, S0010: 2, S0474: 2, S0438: 2, L0771: 2, L0768: 2, L0649: 2, L0806: 2, L0653: 2, L0517: 2, L0663: 2, H0701: 2, H0522: 2, L0779: 2, L0755: 2, H0265: 1, H0713: 1, H0295: 1, S0212: 1, S0420: 1, S0444: 1, S0408: 1, H0393: 1, H0549: 1, H0613: 1, H0592: 1, H0331: 1.					

613	HTLIC39	861985	623	191 - 637	2028	Ser-128 to Gln-133, Ser-144 to Thr-149.	H0250: 1, L0021: 1, H0706: 1, H0318: 1, H0263: 1, H0123: 1, L0471: 1, H0024: 1, H0510: 1, H0615: 1, H0031: 1, H0553: 1, H0169: 1, H0674: 1, S0366: 1, S0036: 1, S0016: 1, H0560: 1, H0714: 1, H0509: 1, H0652: 1, S0142: 1, L0762: 1, L0770: 1, L0769: 1, L0764: 1, L0767: 1, L0803: 1, L0651: 1, L0776: 1, L0655: 1, L0606: 1, L0661: 1, L0658: 1, L0512: 1, L0783: 1, L0384: 1, L0809: 1, S0052: 1, H0593: 1, H0689: 1, H0672: 1, S0378: 1, L0439: 1, L0749: 1, L0750: 1, L0757: 1, L0758: 1, L0759: 1, S0031: 1, H0595: 1, S0434: 1, H0423: 1, H0422: 1 and H0506: 1, AR055: 24, AR033: 18, AR053: 15, AR089: 13, AR052: 12, AR061: 8, AR060: 7, AR096: 5, AR039: 2, AR104: 2 H0201: 2, L0764: 2, L0748: 2, L0779: 2, L0759: 2, H0265: 1, H0402: 1,	11q13	102200, 106100, 131100, 131100, 131100, 133780, 147050, 153700,	4-31, 76- 93, 97-114
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614	HNECI74	862042	624	18 - 653	2029	Ser-105 to Pro-110, His-180 to His-196.	S0420: 1, S0360: 1, H0618: 1, H0424: 1, L0055: 1, H0087: 1, S0002: 1, L0769: 1, L0768: 1, L0766: 1, L0634: 1, H0436: 1, L0747: 1, L0777: 1 and H0542: 1.	161015, 164009, 168461, 168461, 168461, 180721, 180840, 191181, 193235, 209901, 232600, 259700, 259770, 600045, 600319, 600528, 601884	123-152, 63-83, 36- 55, 143- 159
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									1, L0666: 1, H0520: 1, H0659: 1, H0670: 1, S0378: 1, H0710: 1, S0152: 1, H0521: 1, S0406: 1, H0555: 1, H0436: 1, H0345: 1, S3012: 1, S0037: 1, S3014: 1, S0027: 1, S0032: 1, L0749: 1, L0779: 1, L0592: 1, L0097: 1, H0543: 1, S0424: 1 and H0677: 1.				
615	HCRNU23	862179	625	227 - 586	2030	Pro-60 to Gly-66.			AR033: 12, AR089: 10, AR052: 6, AR055: 6, AR061: 5, AR096: 5, AR053: 5, AR060: 5, AR039: 0, AR104: 0 S0356: 1, H0431: 1, H0013: 1, H0599: 1, L0770: 1 and L0777: 1.			99-120, 32-48	
616	HCMSK41	862374	626	13 - 372	2031	Pro-111 to Ser-120.			AR096: 4, AR055: 3, AR053: 3, AR033: 2, AR060: 2, AR061: 2, AR052: 2, AR104: 1, AR089: 1, AR039: 0 H0196: 1			62-82	
617	HEEAF67	862392	627	55 - 639	2032	Val-15 to Lys-21, Met-62 to Pro-67.			AR033: 12, AR053: 10, AR052: 10, AR096: 10, AR055: 9, AR089: 9, AR104: 9, AR060: 8, AR061: 6, AR039: 3			79-105, 112-137, 21-39, 161-177	




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618	IHWAFQ22	862394	628	497 - 907	2033	Met-1 to Ala-9, Ala-49 to Ser-54, Asp-98 to Trp-103.	AR096: 3, AR089: 1, AR033: 1, AR039: 1, AR060: 1, AR052: 0, AR055: 0, AR053: 0, AR061: 0, AR104: 0 L0439: 12, L0751: 7, L0745: 6, L0766: 4, L0438: 4, H0580: 3, L0717: 3, H0592: 3, S0372: 3, L0770: 3, L0665: 3, L0750: 3, H0422: 3, H0657: 2, S0442: 2, S0444: 2, H0581: 2, H0553: 2, H0494: 2, S0422: 2, L0637: 2, L0662: 2, L0649: 2, L0659: 2, L0793: 2, L0666: 2, L0664: 2, H0726: 2, H0521: 2, L0758: 2, H0445: 2, S0436: 2, L0603: 2, T0002: 1, H0341: 1, H0484: 1, S0420: 1, S0376: 1, H0730: 1, S0045: 1, S0476: 1, H0261: 1, H0586: 1, H0497: 1, H0013: 1, S0474: 1, H0566: 1, H0012: 1, H0594: 1, H0030: 1, L0055: 1, H0616: 1, H0488: 1, H0366: 1, S0426: 1, L0769: 1, L0638: 1, L5566: 1, L0646: 1, L0800: 1, L0764: 1, L0771: 1,				60-79
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619	HCECR08	862433	629	567 - 1076	2034		L0767: 1, L0768: 1, L0804: 1, L0774: 1, L0776: 1, L0655: 1, L0809: 1, H0703: 1, S0148: 1, H0724: 1, H0547: 1, H0519: 1, H0659: 1, H0648: 1, H0672: 1, H0710: 1, H0696: 1, S0406: 1, L0756: 1, L0777: 1, L0599: 1, L0601: 1, S0026: 1, S0242: 1 and H0542: 1.				132-152, 96-112, 77-93, 33-49
							AR104: 8, AR061: 4, AR089: 3, AR060: 2, AR033: 2, AR039: 1, AR055: 1, AR096: 1, AR052: 0, AR053: 0, L0779: 6, H0556: 5, L0740: 5, H0052: 4, L0766: 3, H0521: 3, S0028: 3, L0756: 3, S0222: 2, H0553: 2, H0038: 2, L0804: 2, L0666: 2, L0665: 2, L0438: 2, H0658: 2, L0439: 2, L0749: 2, L0758: 2, L0601: 2, H0543: 2, H0255: 1, H0663: 1, S0420: 1, S0356: 1, S0358: 1, H0619: 1, L0717: 1, H0411: 1, H0550: 1, H0592: 1, H0587: 1, H0559: 1, H0486: 1, H0618: 1, H0390: 1, S0346: 1,				

620	HDPCX59	862442	630	685 - 1038	2035	Met-1 to Arg-6.	H0581: 1, H0194: 1, H0121: 1, H0457: 1, H0050: 1, S0051: 1, H0594: 1, H0266: 1, H0271: 1, S0003: 1, H0328: 1, H0622: 1, H0644: 1, H0032: 1, H0135: 1, H0634: 1, H0616: 1, H0087: 1, H0551: 1, H0059: 1, H0100: 1, H0561: 1, S0448: 1, H0132: 1, H0633: 1, H0646: 1, S0002: 1, S0426: 1, L0796: 1, L0761: 1, L0764: 1, L0662: 1, L0768: 1, L0794: 1, L0803: 1, L0775: 1, L0805: 1, L0789: 1, L0663: 1, H0703: 1, H0519: 1, H0682: 1, H0435: 1, H0648: 1, S0152: 1, H0696: 1, H0555: 1, S0206: 1, L0754: 1, L0752: 1, L0731: 1, L0757: 1 and H0423: 1.	4q11-q13	103600, 103600, 103600, 104150, 104150, 104500, 125490, 170650	95-118, 81-97, 40- 56
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621	HBCAY76	862450	631	56 - 1186	2036	Arg-68 to Gly-73, Arg-81 to Asn-86, Cys-128 to Glu-133, Arg-175 to Asp-184, Pro-315 to Ser-334, Ser-337 to Ser-360.	AR061: 8, AR039: 3, AR104: 2, AR033: 2, AR060: 1, AR053: 1, AR096: 0, AR055: 0, AR089: 0 L0748: 10, L0809: 5, L0777: 5, H0556: 4, L0769: 4, H0052: 3, S0206: 3, H0265: 2, L0764: 2, L0787: 2, L0439: 2, L0747: 2, L0601: 2, S0218: 1, L0426: 1, S0116: 1, H0484: 1, H0393: 1, H0370: 1, H0178: 1, H0123: 1, H0030: 1, H0553: 1, L0055: 1, H0494: 1, L0763: 1, L0770: 1, L0639: 1, L0773: 1, L0648: 1, L0805: 1, L0666: 1, L0664: 1, H0593: 1, H0659: 1, S0378: 1, H0696: 1 and L0759: 1.			1-19, 88- 105, 151- 167
622	HPJAV04	862479	632	166 - 1227	2037	Gln-30 to Cys-35, Leu-50 to Gln-61, Gly-133 to Phe-143, Pro-145 to Glu-157, Asp-178 to Glu-184, Arg-241 to Gln-247, Pro-260 to Leu-267, Phe-305 to Gln-312.	AR055: 10, AR104: 9, AR039: 7, AR060: 7, AR061: 7, AR052: 5, AR089: 5, AR053: 5, AR096: 5, AR033: 5 H0556: 3, H0341: 2, H0144: 2, L0743: 2, S0436: 2, H0543: 2, H0295: 1, H0661: 1, S0046: 1, H0587:			61-88, 288-304, 334-350

623	HHFMA59	862567	633	249 - 749	2038	Arg-127 to Tyr-132.	1, H0333: 1, H0486: 1, H0013: 1, H0618: 1, H0009: 1, H0024: 1, T0010: 1, H0553: 1, H0551: 1, T0042: 1, S0150: 1, S0142: 1, S0422: 1, L0787: 1, H0519: 1, S0152: 1, H0521: 1, H0134: 1, L0740: 1, L0779: 1, S0434: 1, S0194: 1, S0276: 1 and H0422: 1.				67-85, 8- 26, 109- 125
624	HNFDV96	862665	634	276 - 2423	2039	Ser-39 to Val-46, His-50 to Ser-58, Cys-86 to Ile-91, Phe-106 to Gly-111, Cys-123 to Ala-131, Leu-154 to Glu-170, Leu-225 to Arg-235, Glu-288 to Leu-294, Pro-397 to Thr-402, Asp-411 to Glu-417, Arg-449 to Arg-455, Ile-531 to Thr-537, Pro-578 to Arg-587,	AR104: 46, AR089: 34, AR096: 33, AR052: 31, AR033: 31, AR039: 30, AR053: 25, AR055: 18, AR060: 14, AR061: 9 H0619: 1 and S3014: 1. AR089: 1, AR055: 1, AR061: 1, AR060: 0, AR053: 0, AR039: 0, AR052: 0, AR096: 0, AR033: 0 H0624: 1, H0306: 1, H0497: 1, H0271: 1, H0521: 1 and L0595: 1.				234-256

625	HNTAI35	862671	635	145 - 516	2040	Ser-647 to Thr-656, Asp-670 to Ala-675, His-682 to Asn-688.	AR096: 18, AR089: 14, AR039: 10, AR104: 8, AR060: 7, AR033: 6, AR053: 5, AR052: 5, AR055: 3, AR061: 2 H0046: 7, H0521: 7, H0556: 6, H0551: 5, H0265: 4, S0212: 4, H0585: 3, H0599: 3, S0002: 3, H0522: 3, H0149: 2, S0040: 2, H0341: 2, H0586: 2, H0024: 2, H0266: 2, S0250: 2, H0622: 2, H0634: 2, L0596: 2, T0002: 1, H0656: 1, H0638: 1, H0125: 1, S0418: 1, S0358: 1, S0132: 1, H0619: 1, H0437: 1, H0415: 1, H0592: 1, H0642: 1, H0486: 1, T0040: 1, H0250: 1, H0575: 1, H0618: 1, S0474: 1, H0123: 1, H0050: 1, H0012: 1, H0014: 1, H0373: 1, H0286: 1, H0039: 1, H0135: 1, H0022: 1, T0042: 1, H0560: 1, H0561: 1, S0144: 1, S0142: 1, S0344: 1, S0210: 1, L0378:	86-106, 19-36
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626	HCE3X63	862807	636	719 - 2422	2041	Ser-11 to Glu-17.	1, H0519: 1, H0593: 1, H0435: 1, S0390: 1, S0037: 1, S0027: 1, L0740: 1, L0779: 1, L0593: 1, L0601: 1 and H0422: 1.					20-50, 206-229, 167-189, 77-103, 58-75, 128-144, 240-256	
627	HCE2K01	862851	637	103 - 915	2042	Ala-12 to Glu-27, Pro-35 to Ser-43, Pro-70 to Gly-79, Ser-92 to Val-98, Pro-166 to Leu-175, Ser-234 to Thr-246.	AR052: 3, AR053: 2, AR096: 2, AR055: 1, AR089: 1, AR060: 1, AR061: 0, AR033: 0, AR039: 0, AR104: 0	1				10777, 123940, 139350, 139350, 148040, 148041, 148043, 148070, 231550, 600194, 600231, 600536, 600808, 600956, 601284, 601769, 601769,	100-130, 248-264, 142-158



628	HJPCG05	862913	638	695 - 1072	2043	His-91 to Leu-97, Pro-108 to Gly-118, Leu-120 to Pro-126.	AR055: 19, AR053: 18, AR033: 15, AR052: 15, AR089: 12, AR039: 12, AR060: 10, AR061: 8, AR096: 6, AR104: 4 L0375: 3, H0575: 2, L0800: 2, L0794: 2, L0789: 2, H0556: 1, H0662: 1, S0418: 1, H0619: 1, H0549: 1, H0590: 1, H0052: 1, H0083: 1, H0266: 1, H0286: 1, H0644: 1, S0036: 1, H0433: 1, H0412: 1, H0413: 1, T0042: 1, S0144: 1, S0142: 1, S0344: 1, L0770: 1, L0761: 1, L0774: 1, H0518: 1, L0777: 1, L0758: 1 and H0665: 1.	601928, 602116, 602153	64-89, 3- 19
629	HOUFG48	863051	639	61 - 633	2044	Pro-10 to Leu-20, Asn-33 to Val-38.	AR055: 6, AR052: 5, AR033: 5, AR089: 5, AR053: 4, AR061: 4, AR060: 3, AR096: 3, AR039: 1, AR104: 1 L0752: 6, L0747: 5, L0438: 4, L0439: 4, S0007: 3, L0776: 3, H0686: 2,	115-134, 57-73	

630	HCYBG68	863308	640	154 - 1260	2045	Leu-178 to Gly-191, Glu-225 to Thr-232.	S0040: 2, T0039: 2, H0052: 2, H0009: 2, H0031: 2, H0068: 2, L0769: 2, L0809: 2, L0665: 2, L0749: 2, L0757: 2, L0758: 2, L0590: 2, L0599: 2, L0595: 2, H0294: 1, S0376: 1, S0360: 1, H0580: 1, H0550: 1, H0587: 1, H0486: 1, H0013: 1, H0581: 1, L0471: 1, H0023: 1, S0362: 1, H0266: 1, H0290: 1, H0428: 1, H0038: 1, H0551: 1, H0412: 1, T0041: 1, T0042: 1, H0561: 1, S0144: 1, H0538: 1, H0529: 1, L0637: 1, L0372: 1, L0773: 1, L0662: 1, L0626: 1, L0768: 1, L0766: 1, L0803: 1, L0519: 1, H0701: 1, H0547: 1, H0659: 1, H0660: 1, H0651: 1, H0539: 1, S0380: 1, H0710: 1, H0521: 1, H0214: 1, H0478: 1, H0540: 1, L0742: 1, L0743: 1, L0750: 1, L0777: 1, L0731: 1, S0434: 1, L0592: 1 and H0543: 1.					139-159
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631	HDTBD83	863372	641	268 - 603	2046	Gly-16 to Arg-21.	AR089: 1, AR053: 1, AR039: 0, AR061: 0, AR104: 0 S0007: 3, S0010: 2, S0028: 2, L0366: 2, H0170: 1, H0583: 1, S0001: 1, S0282: 1, T0114: 1, H0244: 1, S0346: 1, H0318: 1, H0581: 1, H0320: 1, H0051: 1, S0051: 1, S6028: 1, H0416: 1, H0644: 1, H0068: 1, H0551: 1, L0776: 1, H0701: 1, H0520: 1, L0439: 1, L0777: 1, L0592: 1, L0594: 1 and S0242: 1.			
632	HCDEG27	863396	642	35 - 355	2047	Glu-45 to Phe-53.	AR033: 4, AR055: 2, AR089: 2, AR060: 1, AR096: 1, AR061: 1, AR104: 0, AR039: 0, AR052: 0, AR053: 0 H0052: 2 and H0486: 1. AR039: 81, AR053: 42, AR033: 38, AR055: 34, AR052: 33, AR096: 31, AR104: 29, AR089: 28, AR060: 25, AR061: 17 H0251: 6, L0770: 2, L0762: 1 and L0757: 1.			79-95, 21- 37
633	HBXDJ07	863541	643	124 -	2048	Glu-62 to Lys-68,	AR033: 10, AR104: 5,			60-93, 80- 96
										1-20, 112-

			651	Asn-105 to Gly-113.	AR052: 3, AR096: 3, AR055: 2, AR053: 2, AR089: 1, AR061: 1, AR060: 1, AR039: 1 L0439: 6, S0222: 3, L0794: 3, H0052: 2, S6028: 2, S0038: 2, L0740: 2, L0756: 2, H0624: 1, H0171: 1, S6024: 1, H0013: 1, H0374: 1, H0050: 1, S0050: 1, H0051: 1, S0386: 1, H0144: 1, L0438: 1 and L0746: 1.			135, 77- 103
634	HBKDA80	863586	644	Gly-18 to Lys-25, Val-43 to Gly-48, Gly-56 to Arg-62.	AR104: 57, AR033: 49, AR061: 13, AR096: 12, AR089: 10, AR055: 9, AR060: 6, AR039: 4, AR052: 2, AR053: 1 L0748: 22, H0052: 19, S0036: 12, L0752: 10, L0439: 9, L0622: 8, S0051: 7, H0478: 7, L0623: 6, L0809: 6, L0747: 6, H0441: 5, H0599: 5, L0770: 5, L0666: 5, L0741: 5, L0743: 5, L0745: 5, S0049: 4, L0471: 4, L0794: 4, L0438: 4, S0330: 4, H0521: 4, L0742: 4, L0746: 4, L0485: 4, S0358: 3, H0687: 3,	6p21.3	106300, 108800, 120290, 120290, 120810, 120820, 142857, 142858, 150270, 167250, 170261, 177900, 179450, 201910, 217000, 222100, 233100,	136-152

S0038: 3, S0438: 3, L0774: 3, L0659: 3, H0539: 3, L0779: 3, S6024: 2, S0001: 2, S0356: 2, H0645: 2, S6026: 2, S0222: 2, S6014: 2, H0455: 2, H0586: 2, H0194: 2, H0051: 2, H0201: 2, S0388: 2, T0010: 2, S0364: 2, L0455: 2, H0068: 2, H0135: 2, H0264: 2, S0112: 2, L0371: 2, L0769: 2, L0638: 2, L3905: 2, L5566: 2, L0800: 2, L0803: 2, L0664: 2, S0310: 2, H0660: 2, L0612: 2, L0744: 2, L0756: 2, L0361: 2, H0171: 1, H0713: 1, L0393: 1, L0785: 1, S0029: 1, S0408: 1, H0722: 1, S0007: 1, H0393: 1, S0300: 1, H0351: 1, H0549: 1, H0550: 1, H0357: 1, H0592: 1, H0587: 1, S0280: 1, H0156: 1, H0597: 1, H0327: 1, H0046: 1, H0150: 1, H0009: 1, H0569: 1, H0014: 1, S0362: 1, L0163: 1, H0408: 1, H0188: 1, H0284: 1, H0615: 1, H0428: 1, H0673: 1, H0708: 1, S0366: 1	235200, 248611, 256550, 256550, 600202, 600261, 601868, 602280, 602475
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635	HSSDP38	863587	645	214 - 1188	2050	Gly-18 to Lys-25, Val-29 to Gly-34, Gly-42 to Arg-48, Leu-199 to Arg-204, Trp-220 to Asp-228, Asn-261 to Gln-268.	T0004: 1, L0351: 1, S0352: 1, S0440: 1, S0144: 1, S0344: 1, L0763: 1, L0500: 1, L5575: 1, L0761: 1, L0646: 1, L0771: 1, L0648: 1, L0649: 1, L0804: 1, L0651: 1, L0805: 1, L0776: 1, L0542: 1, L0782: 1, L0783: 1, L0789: 1, L0790: 1, L0791: 1, S0053: 1, S0374: 1, H0520: 1, H0547: 1, H0593: 1, H0670: 1, H0522: 1, S0044: 1, H0555: 1, H0631: 1, S0432: 1, L0740: 1, L0750: 1, L0786: 1, L0755: 1, S0031: 1, H0445: 1, L0581: 1 and L0604: 1.	6p21.3	106300, 108800, 120290, 120290, 120810, 120820, 142857, 142858, 150270, 167250, 170261, 177900,	122-138
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5, L0745: 5, S0049: 4, L0471: 4, L0794: 4, L0438: 4, S0330: 4, H0521: 4, L0742: 4, L0746: 4, L0485: 4, S0358: 3, H0687: 3, S0038: 3, S0438: 3, L0774: 3, L0659: 3, H0539: 3, L0779: 3, S6024: 2, S0001: 2, S0356: 2, H0645: 2, S6026: 2, S0222: 2, S6014: 2, H0455: 2, H0586: 2, H0194: 2, H0051: 2, H0201: 2, S0388: 2, T0010: 2, S0364: 2, L0455: 2, H0068: 2, H0135: 2, H0264: 2, S0112: 2, L0371: 2, L0769: 2, L0638: 2, L3905: 2, L5566: 2, L0800: 2, L0803: 2, L0664: 2, S0310: 2, H0660: 2, L0612: 2, L0744: 2, L0756: 2, L0361: 2, H0171: 1, H0713: 1, L0393: 1, L0785: 1, S0029: 1, S0408: 1, H0722: 1, S0007: 1, H0393: 1, S0300: 1, H0351: 1, H0549: 1, H0550: 1, H0357: 1, H0592: 1, H0587: 1, S0280: 1, H0156: 1, H0597: 1, H0327: 1, H0046: 1, H0150: 1, H0009:	179450, 201910, 217000, 222100, 233100, 235200, 248611, 256550, 256550, 600202, 600261, 601868, 602280, 602475
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636	HSSGL44	863654	646	1668 - 1982	2051	Ala-17 to Ser-27, Arg-42 to Ser-57, Thr-72 to Gly-85.	1, H0569: 1, H0014: 1, S0362: 1, L0163: 1, H0408: 1, H0188: 1, H0284: 1, H0615: 1, H0428: 1, H0673: 1, H0708: 1, S0366: 1, T0004: 1, L0351: 1, S0352: 1, S0440: 1, S0144: 1, S0344: 1, L0763: 1, L0500: 1, L5575: 1, L0761: 1, L0646: 1, L0771: 1, L0648: 1, L0649: 1, L0804: 1, L0651: 1, L0805: 1, L0776: 1, L0542: 1, L0782: 1, L0783: 1, L0789: 1, L0790: 1, L0791: 1, S0053: 1, S0374: 1, H0520: 1, H0547: 1, H0593: 1, H0670: 1, H0522: 1, S0044: 1, H0555: 1, H0631: 1, S0432: 1, L0740: 1, L0750: 1, L0786: 1, L0755: 1, S0031: 1, H0445: 1, L0581: 1 and L0604: 1.				
							AR055: 4, AR052: 4, AR096: 3, AR060: 3, AR033: 3, AR053: 3, AR089: 3, AR061: 2, AR104: 2, AR039: 0, L0439: 8, H0556: 6, L0766: 4, L0740: 4, S0420: 1.				87-104





636	HSSGL44	863654	646	1668 - 1982	2051	Ala-17 to Ser-27, Arg-42 to Ser-57, Thr-72 to Gly-85.	1, H0569: 1, H0014: 1, S0362: 1, L0163: 1, H0408: 1, H0188: 1, H0284: 1, H0615: 1, H0428: 1, H0673: 1, H0708: 1, S0366: 1, T0004: 1, L0351: 1, S0352: 1, S0440: 1, S0144: 1, S0344: 1, L0763: 1, L0500: 1, L5575: 1, L0761: 1, L0646: 1, L0771: 1, L0648: 1, L0649: 1, L0804: 1, L0651: 1, L0805: 1, L0776: 1, L0542: 1, L0782: 1, L0783: 1, L0789: 1, L0790: 1, L0791: 1, S0053: 1, S0374: 1, H0520: 1, H0547: 1, H0593: 1, H0670: 1, H0522: 1, S0044: 1, H0555: 1, H0631: 1, S0432: 1, L0740: 1, L0750: 1, L0786: 1, L0755: 1, S0031: 1, H0445: 1, L0581: 1 and L0604: 1. AR055: 4, AR052: 4, AR096: 3, AR060: 3, AR033: 3, AR053: 3, AR089: 3, AR061: 2, AR104: 2, AR039: 0 L0439: 8, H0556: 6, L0766: 4, L0740: 4, S0420:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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637	HBODY10	863665	647	6 - 875	2052	Ala-13 to Gly-18.	1 and H0542: 1. AR096: 8, AR060: 7, AR089: 6, AR055: 6, AR052: 6, AR053: 5, AR033: 5, AR104: 4, AR061: 4, AR039: 0 L0777: 3, H0624: 2, S0366: 2, L0779: 2, L0759: 2, L0604: 2, H0171: 1, H0149: 1, H0729: 1, H0741: 1, L0622: 1, L0623: 1, H0546: 1, H0213: 1, S0364: 1, H0708: 1 and L0636: 1.				93-114, 185-203, 56-72, 256-272, 20-36, 116-132
638	HDFUB58	863687	648	1229 - 1714	2053	Ser-20 to Lys-33, Glu-100 to Thr-111.	AR104: 5, AR033: 4, AR096: 3, AR089: 3, AR053: 3, AR055: 2, AR060: 2, AR061: 1, AR052: 1, AR039: 0 L0748: 9, L0777: 3, L0438: 2, L0751: 2, L0362: 2, H0381: 1, S0282: 1, S0045: 1, L0717: 1, L0037: 1, H0567: 1, L0471: 1, S6028: 1, H0163: 1, H0040: 1, H0100: 1, L0639: 1, L0775: 1, L0375: 1, L0776: 1, S0374: 1, S0330: 1, L0741: 1, L0743: 1, L0744: 1, L0439: 1 and L0756: 1.				108-134, 78-94, 139-155

639	HSMBE70	863709	649	586 - 900	2054	Gly-2 to Gly-10, Ser-56 to Cys-62.	AR096: 5, AR033: 4, AR053: 4, AR104: 4, AR052: 3, AR089: 3, AR060: 2, AR055: 1, AR061: 1, AR039: 0 H0295: 4, L0731: 4, S0040: 2, H0688: 2, L0775: 2, L0659: 2, H0521: 2, L0744: 2, H0713: 1, H0294: 1, S0298: 1, H0370: 1, H0586: 1, H0599: 1, S0364: 1, H0059: 1, L0769: 1, L0646: 1, L0764: 1, L0363: 1, L0776: 1, L0749: 1 and H0668: 1.				82-99, 63- 79
640	HEPAA94	863718	650	91 - 405	2055		AR039: 2, AR055: 2, AR104: 1, AR033: 1, AR060: 1, AR053: 0, AR089: 0, AR061: 0, AR096: 0, AR052: 0 S0212: 5, L0776: 3, S0404: 3, S0045: 2, L0665: 2, H0670: 2, L0777: 2, L0757: 2, S0342: 1, S0418: 1, H0339: 1, H0013: 1, L0021: 1, H0318: 1, H0545: 1, H0150: 1, T0079: 1, H0594: 1, H0188: 1, H0687: 1, H0252: 1, H0644: 1, H0616: 1, H0413: 1, L0794: 1,	8p11.2- p11.1	136350, 152760, 180100, 182900, 277700, 600617	51-68, 24- 40, 84-100	

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643	HCECL08	863887	653	207 - 992	2058	Leu-135 to Gly-145, Glu-189 to Phe-195, Cys-233 to His-239, Glu-283 to Thr-299.	AR096: 15, AR052: 9, AR055: 7, AR053: 6, AR039: 0, AR104: 0 H0051: 6, S0036: 4, L0770: 4, H0052: 3, L0769: 3, L0803: 3, S0010: 2, S0112: 2, S0282: 1, H0305: 1, H0261: 1, H0438: 1, S0346: 1, H0327: 1, H0046: 1, S0051: 1, H0100: 1, L0635: 1, L0741: 1 and S0260: 1.	1q21	104770, 107670, 110700, 135940, 145001, 146790, 152445, 152445, 159001, 174000, 179755, 182860, 182860, 182860, 191315, 230800, 230800, 266200,	211-239, 1-18, 156- 172
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644	HUCOT09	863914	654	5 - 1318	2059							AR033: 5, AR055: 5, AR096: 4, AR104: 3, AR052: 3, AR089: 3, AR060: 3, AR039: 2, AR061: 1, AR053: 1 L0748: 16, L0758: 10, L0754: 9, L0747: 9, L0751: 8, L0769: 6, L0806: 6, L0776: 6, L0439: 6, H0457: 5, H0494: 5, L0740: 5, H0599: 4, H0052: 4, L0662: 4, L0774: 4, L0757: 4, H0506: 4, S0418: 3, H0619: 3, H0586: 3, H0416: 3, H0622: 3, H0553: 3, H0560: 3, L0766: 3, L0659: 3, L0666: 3, L0665: 3, H0521: 3, L0485: 3, H0663: 2, S0358: 2, L0717: 2, H0261: 2, H0575: 2, S0474: 2, H0421: 2, H0251: 2, T0010: 2, H0266: 2, H0188: 2, H0135: 2, H0280: 2, S0142: 2, L0369: 2, L0764: 2, L0768: 2, L0803: 2, L0653:	600897, 601105, 601412, 601652, 602491	298-314
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645	HYBAF24	863934	655	31 - 510	2060	Cys-51 to Arg-76, Glu-122 to Gln-129.	1, L0523: 1, L0379: 1, L0657: 1, L0783: 1, H0144: 1, H0520: 1, H0690: 1, H0659: 1, H0670: 1, H0648: 1, S0378: 1, S0152: 1, S0332: 1, H0522: 1, H0696: 1, H0436: 1, S3012: 1, S0028: 1, L0744: 1, L0752: 1, S0394: 1, L0588: 1, L0608: 1, S0192: 1 and S0276: 1.						101-117
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646	HEMET46	863977	656	201 -	2061	Thr-36 to Gln-49,	1, L0002: 1, S0358: 1, H0437: 1, H0602: 1, T0109: 1, H0599: 1, H0036: 1, H0004: 1, H0318: 1, H0581: 1, H0421: 1, H0052: 1, H0046: 1, H0041: 1, L0471: 1, H0024: 1, L0163: 1, S0051: 1, H0083: 1, H0188: 1, H0252: 1, H0615: 1, L0483: 1, T0006: 1, H0598: 1, H0040: 1, T0041: 1, S0440: 1, S0150: 1, S0142: 1, S0344: 1, L0369: 1, L0763: 1, L0770: 1, L0769: 1, L4747: 1, L0772: 1, L0372: 1, L0771: 1, L0794: 1, L0499: 1, L0776: 1, L0655: 1, L0807: 1, L0657: 1, L0513: 1, L0382: 1, L0809: 1, L0787: 1, L0664: 1, H0690: 1, H0659: 1, H0670: 1, H0660: 1, H0710: 1, S0152: 1, H0696: 1, H0704: 1, H0555: 1, S0028: 1, L0741: 1, L0740: 1, L0755: 1, L0757: 1, L0758: 1, H0595: 1, L0485: 1, S0026: 1, H0216: 1, H0543: 1, H0422: 1 and S0424: 1.						184-216,
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647	HFXJM86	863982	657	246 - 1757	2062		AR052: 62, AR053: 48, AR055: 35, AR096: 29, AR089: 20, AR104: 17, AR039: 14, AR060: 13, AR033: 13, AR061: 8 H0599: 5, H0619: 2, S0366: 2, S0282: 1, S0029: 1, H0735: 1, H0200: 1, H0373: 1 and S6028: 1.				248-273, 116-135, 73-92, 299-316, 361-377, 428-444, 459-475, 6-22, 137- 153, 384- 400

648	HDTHL37	864023	658	121 - 897	2063	Ile-50 to Lys-57, Thr-71 to Val-78, Asn-81 to Ala-91, Cys-99 to Gly-105, Ser-138 to Thr-150.	AR033: 7, AR089: 7, AR039: 7, AR052: 6, AR096: 5, AR060: 5, AR061: 4, AR104: 4, AR053: 4, AR055: 3 L0748: 11, L0769: 7, L0766: 7, L0666: 6, L0754: 6, L0779: 6, H0620: 5, L0483: 5, L0770: 5, L0764: 5, L0747: 5, L0759: 5, H0013: 4, H0012: 4, L0776: 4, L0749: 4, L0777: 4, L0755: 4, L0594: 4, S0418: 3, S0360: 3, S0408: 3, H0244: 3, S0440: 3, L0771: 3, L0375: 3, L0663: 3, L0664: 3, L0665: 3, L0751: 3, L0757: 3, H0650: 2, H0038: 2, T0042: 2, H0494: 2, L0761: 2, L0662: 2, L0806: 2, H0519: 2, H0682: 2, H0660: 2, L0439: 2, L0740: 2, L0750: 2, L0758: 2, L0596: 2, H0422: 2, H0170: 1, H0556: 1, T0002: 1, H0686: 1, S0040: 1, S0114: 1, H0657: 1, H0341: 1, H0663: 1, S0356: 1, S0358: 1, H0393: 1, H0261: 1, S0222: 1, H0431: 1,				240-259, 112-128, 201-217, 26-42
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649	HBJFE32	864093	659	338 - 868	2064	Leu-82 to Thr-97.	H0404: 1, H0586: 1, L0623: 1, H0486: 1, H0427: 1, H0156: 1, H0706: 1, H0318: 1, S0474: 1, H0251: 1, H0309: 1, H0263: 1, H0041: 1, H0197: 1, H0266: 1, H0328: 1, L0194: 1, H0644: 1, H0180: 1, L0055: 1, H0068: 1, H0591: 1, H0063: 1, H0413: 1, H0100: 1, H0625: 1, S0438: 1, S0150: 1, H0646: 1, S0144: 1, S0142: 1, S0210: 1, S0002: 1, H0529: 1, L0369: 1, L0762: 1, L0763: 1, L0638: 1, L0667: 1, L0645: 1, L0648: 1, L0774: 1, L0775: 1, L0805: 1, L0654: 1, L0657: 1, L0659: 1, L0636: 1, L0518: 1, L0809: 1, H0689: 1, H0690: 1, H0684: 1, H0435: 1, H0670: 1, S0328: 1, S0330: 1, H0539: 1, S0380: 1, H0696: 1, H0576: 1, S0434: 1, L0591: 1, L0592: 1, S0026: 1, L0600: 1 and H0352: 1. AR055: 13, AR089: 12, AR033: 10, AR060: 10, AR104: 9, AR039: 8,			54-70, 100-116
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650	HSLDY71	864179	660	77 - 769	2065	Thr-83 to Asn-92.	AR052: 8, AR053: 8, AR096: 8, AR061: 7 H0341: 2, S0045: 2, H0551: 2, H0556: 1, S0376: 1, H0619: 1, H0437: 1, H0601: 1, H0333: 1, H0485: 1, H0013: 1, H0635: 1, H0590: 1, H0318: 1, H0009: 1, H0266: 1, H0267: 1, S0003: 1, H0615: 1, H0644: 1, H0383: 1, H0068: 1, H0316: 1, H0116: 1, H0264: 1, H0561: 1, L0768: 1, L0794: 1, H0144: 1, H0436: 1, S0028: 1, L0744: 1, H0445: 1, H0542: 1 and S0424: 1.				138-154, 190-206, 119-135, 95-111, 159-175
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651	HIULFN21	864272	661	680 - 3	2066	Gly-45 to Pro-80, Pro-110 to Gly-116, Pro-118 to Ala-132, Ser-146 to Ala-151, Thr-153 to Ser-163, Gln-171 to Pro-177, Ser-196 to Pro-222.	1, S0028: 1, L0439: 1, L0779: 1, L0757: 1, S0436: 1 and L0601: 1. AR055: 20, AR033: 14, AR089: 12, AR061: 10, AR053: 10, AR052: 10, AR060: 7, AR096: 6, AR104: 2, AR039: 0 L0747: 15, L0731: 11, H0657: 7, H0032: 7, L0752: 7, L0766: 6, L0775: 6, L0740: 6, L0749: 6, H0341: 5, H0318: 5, H0617: 5, L0755: 5, H0484: 4, S0360: 4, S0408: 4, S0222: 4, H0087: 4, L0769: 4, L0804: 4, L0776: 4, H0659: 4, L0742: 4, L0748: 4, L0751: 4, L0754: 4, H0661: 3, S0410: 3, H0486: 3, H0266: 3, L0803: 3, H0144: 3, H0547: 3, H0658: 3, S3014: 3, L0758: 3, L0759: 3, H0543: 3, H0265: 2, H0685: 2, S0134: 2, S0116: 2, H0638: 2, S0418: 2, S0358: 2, H0392: 2, L0623: 2, H0013: 2, H0156: 2, H0530: 2, S0051: 2, H0083: 2, H0169: 2, H0616: 2, H0059:				83-110, 1- 17
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[illegible]

652	HCRPE50	864273	662	18 - 692	2067	Pro-5 to Arg-12, Gly-54 to Pro-89, Glu-125 to Ala-131, Ser-145 to Ala-150, Thr-152 to Ser-162,	1, H0674: 1, S0364: 1, H0708: 1, S0366: 1, H0598: 1, H0135: 1, H0090: 1, H0591: 1, H0038: 1, H0634: 1, H0268: 1, H0413: 1, H0100: 1, H0494: 1, H0560: 1, H0396: 1, H0561: 1, H0366: 1, S0294: 1, S0440: 1, H0509: 1, H0641: 1, S0144: 1, S0422: 1, S0002: 1, L0371: 1, L0631: 1, L0796: 1, L0639: 1, L0372: 1, L0773: 1, L0386: 1, L0774: 1, L0378: 1, L0653: 1, L0512: 1, L0659: 1, L0809: 1, L5623: 1, L0663: 1, H0520: 1, H0519: 1, H0689: 1, H0670: 1, H0672: 1, H0651: 1, H0539: 1, H0518: 1, H0522: 1, H0696: 1, S0118: 1, L0745: 1, L0756: 1, L0780: 1, L0757: 1, H0595: 1, S0434: 1, L0588: 1, L0592: 1, H0667: 1, H0542: 1 and S0462: 1.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Gln-170 to Pro-176, Ser-195 to Lys-211.	L0747: 8, L0779: 7, H0657: 6, L0766: 6, L0751: 6, L0731: 6, L0794: 5, L0740: 5, H0341: 4, H0484: 4, H0318: 4, H0617: 4, H0087: 4, L0769: 4, H0659: 4, L0742: 4, L0754: 4, L0752: 4, H0661: 3, S0360: 3, S0410: 3, L0776: 3, H0658: 3, H0685: 2, S0134: 2, S0116: 2, S0358: 2, S0408: 2, S0222: 2, H0392: 2, H0486: 2, H0013: 2, H0156: 2, H0530: 2, S0051: 2, H0169: 2, H0616: 2, H0059: 2, S0438: 2, L0772: 2, L0521: 2, L0775: 2, L0805: 2, L0659: 2, L0526: 2, L0518: 2, L0663: 2, H0144: 2, H0690: 2, S0378: 2, H0696: 2, L0743: 2, L0749: 2, L0750: 2, L0777: 2, L0596: 2, H0352: 2, H0170: 1, H0265: 1, H0295: 1, H0483: 1, H0255: 1, H0663: 1, H0306: 1, H0638: 1, S0418: 1, S0356: 1, S0354: 1, S0046: 1, H0370: 1, H0333: 1, L0623: 1, H0485: 1, T0109: 1, S0010:
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653	HDTLL66	864279	663	581 - 898	2068	Met-1 to Lys-14, Lys-19 to Cys-25, Pro-27 to Tyr-36, Asn-70 to Lys-78, Leu-96 to Trp-106.	1, L0780: 1, L0758: 1, L0759: 1, H0595: 1, S0434: 1, L0588: 1, H0653: 1, S0276: 1, H0542: 1, H0543: 1 and S0462: 1. AR055: 22, AR033: 19, AR061: 16, AR060: 15, AR089: 14, AR052: 9, AR053: 8, AR039: 5, AR096: 5, AR104: 5				36-52, 79- 95, 54-70
654	HWDAF64	864349	664	75 - 1061	2069	Pro-34 to Cys-39, Thr-155 to Thr-173, Gln-178 to Arg-183, His-209 to Ala-215, Ser-217 to Ser-223, Glu-244 to Pro-250.	AR039: 1, AR096: 1, AR033: 1, AR061: 1, AR089: 1, AR060: 1, AR053: 0, AR104: 0, AR052: 0, AR055: 0 L0769: 3, L0439: 3, L0415: 2, H0255: 2, L0770: 2, L0774: 2, L0663: 2, L0665: 2, L0438: 2, L0777: 2, L0731: 2, L0605: 2, H0580: 1, S0045: 1, S0222: 1, H0441: 1, H0370: 1, H0600: 1, H0333: 1, H0574: 1, H0618: 1, L0738: 1, H0135: 1, H0551: 1, H0413: 1, H0059: 1, H0646: 1, H0538: 1, L0763: 1, L0648: 1, L0766: 1, L0378: 1,				223-240, 277-293, 100-116, 185-201

655	HETJF10	864357	665	25 - 393	2070	Lys-116 to Thr-123.	L0809: 1, L4501: 1, H0593: 1, H0689: 1, H0658: 1, S0432: 1 and S0031: 1.				94-114, 66-82, 15-31
656	HBAGJ74	864391	666	10 - 375	2071	Met-1 to Leu-6, Gly-15 to Gln-22.	AR089: 4, AR033: 3, AR061: 3, AR060: 2, AR055: 2, AR096: 1, AR052: 1, AR039: 0, AR053: 0, AR104: 0, S0342: 1, H0484: 1, S0358: 1, S6022: 1, H0046: 1, L0438: 1, H0593: 1, S0037: 1, L0439: 1 and L0759: 1.				91-108, 25-41, 52-68
657	HT5EJ85	864392	667	45 - 551	2072	Pro-10 to Thr-18, Cys-22 to Gly-28, Arg-46 to Arg-51, Pro-53 to Tyr-58.	AR055: 8, AR033: 7, AR052: 7, AR104: 6, AR096: 6, AR060: 5, AR061: 5, AR053: 5, AR089: 5, AR039: 5, H0584: 4, L0783: 4, L0809: 4, L0758: 4, L0769: 3, L0439: 3, H0167: 2, H0295: 2, H0484: 2, H0411: 2, L0764: 2, L0662: 2,				61-80, 88-104

658	HKAKL77	864545	668	25 - 519	2073	Met-1 to Arg-12, Asp-25 to Thr-34, Ala-37 to Pro-46, Leu-72 to Ser-79.	L0768: 2, L0438: 2, L0755: 2, L0601: 2, L0603: 2, H0294: 1, S0218: 1, H0657: 1, H0656: 1, L0785: 1, H0341: 1, H0661: 1, S0354: 1, L0717: 1, H0052: 1, H0544: 1, H0545: 1, H0510: 1, H0615: 1, H0628: 1, H0181: 1, H0038: 1, H0059: 1, H0130: 1, L0763: 1, L0770: 1, L0761: 1, L0644: 1, L0773: 1, L0766: 1, L0774: 1, L0378: 1, L0807: 1, L0659: 1, L0666: 1, L0664: 1, S0374: 1, T0068: 1, H0520: 1, S0126: 1, H0435: 1, H0660: 1, H0539: 1, H0521: 1, H0696: 1, H0444: 1 and H0543: 1.					78-104, 142-164, 116-135, 52-68
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659	HCFBY67	864566	669	38 - 403	2074	Ile-33 to Asp-46, Pro-51 to Cys-56, Gly-71 to Gly-81.			AR033: 15, AR089: 13, AR053: 9, AR052: 9, AR060: 8, AR055: 7, AR061: 7, AR096: 2, AR039: 0 S0136: 7, S0356: 2, S0410: 2, H0486: 2, H0672: 2, H0422: 2, H0170: 1, H0657: 1, H0692: 1, H0254: 1, H0402: 1, H0305: 1, S0358: 1, H0619: 1, L0717: 1, H0406: 1, H0599: 1, S0010: 1, T0115: 1, H0545: 1, S0051: 1, H0617: 1, H0264: 1, H0100: 1, L0659: 1, L0789: 1, L0665: 1, H0519: 1, H0414: 1, S0406: 1 and H0352: 1.			80-104
660	HUCNL85	864609	670	270 - 899	2075	Gln-11 to Lys-21, Arg-119 to Ser-124.			AR039: 196, AR096: 179, AR052: 167, AR053: 140, AR089: 132, AR060: 86, AR104: 71, AR033: 59,			71-89, 38-54



661	HSDIW17	864772	671	357 - 884	2076			AR055: 35, AR061: 23 H0521: 5, H0370: 3, L0439: 3, H0341: 2, S0420: 2, H0592: 2, H0087: 2, L0792: 2, H0519: 2, S0418: 1, H0619: 1, H0393: 1, S0278: 1, H0392: 1, H0600: 1, H0586: 1, H0497: 1, S0049: 1, H0544: 1, L0471: 1, H0071: 1, H0083: 1, H0266: 1, H0288: 1, H0286: 1, S0036: 1, H0494: 1, S0150: 1, H0593: 1, H0539: 1 and L0759: 1.				117-141, 3-30, 39- 60, 96- 114, 148- 166, 73-89
662	HHIETS46	864808	672	233 - 574	2077			AR053: 3, AR052: 3, AR096: 3, AR089: 2, AR055: 2, AR060: 1, AR104: 1, AR033: 1, AR061: 1, AR039: 0 S0050: 1, S0028: 1 and S0260: 1. AR052: 3, AR053: 3, AR096: 2, AR033: 2, AR089: 2, AR039: 1, AR055: 1, AR061: 1, AR060: 1, AR104: 1 L0757: 6, L0775: 4, L0731: 4, H0421: 3, L0774: 3, L0758: 3, S0040: 2,				56-72

663	HAPSD53	864818	673	93 - 1106	2078	Asn-9 to Thr-17, Ala-25 to Ser-36, Asn-66 to Tyr-75, Lys-123 to Tyr-145, Asn-154 to Phe-161, Ser-218 to Ala-228, Pro-240 to Ser-247, Thr-273 to Phe-278,	S0376: 2, T0048: 2, L0764: 2, L0809: 2, H0682: 2, S0028: 2, L0748: 2, L0755: 2, L0597: 2, L0588: 2, L0590: 2, H0543: 2, H0170: 1, T0049: 1, S0348: 1, S0420: 1, S0045: 1, S0046: 1, H0411: 1, T0104: 1, L0623: 1, H0486: 1, S0280: 1, H0599: 1, H0575: 1, H0581: 1, S0049: 1, H0183: 1, H0545: 1, H0266: 1, H0288: 1, H0628: 1, H0617: 1, H0090: 1, H0268: 1, H0413: 1, S0210: 1, L0762: 1, L0763: 1, L0770: 1, L0768: 1, L0663: 1, H0690: 1, H0435: 1, H0658: 1, S0380: 1, S0152: 1, H0555: 1, H0436: 1, L0749: 1, L0777: 1, L0753: 1, L0362: 1 and H0423: 1.				
						AR055: 8, AR033: 6, AR089: 5, AR052: 5, AR053: 5, AR061: 4, AR060: 4, AR096: 3, AR104: 3, AR039: 0 L0439: 5, L0794: 4, H0253: 3, L0766: 3, H0618: 2, L0769: 2, L0800: 2,					84-107

664	HAMFW6 6	864987	674	158 - 469	2079	Ala-301 to Pro-315, Arg-330 to Ala-338.	L0659: 2, L0789: 2, L0744: 2, L0749: 2, L0758: 2, H0265: 1, H0556: 1, S0360: 1, S0045: 1, S0222: 1, H0592: 1, H0069: 1, H0575: 1, H0318: 1, H0052: 1, H0083: 1, H0615: 1, H0038: 1, H0413: 1, H0494: 1, L0763: 1, L0770: 1, L0771: 1, L0662: 1, L0803: 1, L0378: 1, L0653: 1, L0629: 1, L0809: 1, L0666: 1, L0664: 1, L0438: 1, L0743: 1, L0754: 1, L0747: 1, L0750: 1, L0779: 1, L0777: 1, L0731: 1, L0596: 1, L0588: 1, L0605: 1 and H0352: 1.				58-83
						AR053: 3, AR052: 3, AR033: 2, AR096: 2, AR089: 2, AR055: 2, AR104: 1, AR060: 1, AR061: 0, AR039: 0 L0754: 12, S0410: 10, L0766: 9, L0591: 7, L0748: 4, L0752: 4, H0423: 4, H0556: 3, S0360: 3, L0646: 3, L0527: 3, L0596: 3, H0170: 2, H0265: 2, S0114: 2, S0218: 2, H0266: 2,					

665	HTJMU48	865019	675	20 - 1015	2080	Gly-32 to Asn-51, Trp-72 to Ala-83,	H0615: 2, H0056: 2, H0560: 2, H0561: 2, L0803: 2, L0782: 2, H0547: 2, H0134: 2, H0436: 2, L0756: 2, H0445: 2, L0362: 2, H0543: 2, L0002: 1, H0650: 1, S0418: 1, H0208: 1, S0046: 1, S0476: 1, H0619: 1, H0437: 1, H0550: 1, T0114: 1, H0013: 1, T0048: 1, H0318: 1, L0109: 1, H0050: 1, L0471: 1, S0051: 1, H0083: 1, H0328: 1, H0622: 1, H0604: 1, H0031: 1, H0591: 1, H0551: 1, H0268: 1, H0623: 1, H0100: 1, H0132: 1, L0763: 1, L0667: 1, L0388: 1, L0804: 1, L0776: 1, L0606: 1, L0657: 1, L0659: 1, L0542: 1, L0518: 1, L0809: 1, L0791: 1, L0792: 1, L0793: 1, H0519: 1, H0682: 1, H0648: 1, S0330: 1, S0152: 1, S0406: 1, L0750: 1, L0779: 1, L0757: 1, L0759: 1, L0480: 1, H0542: 1 and H0506: 1. AR033: 5, AR096: 5, AR039: 5, AR053: 4,	19q13.2- q13.3	107741, 113900,	52-70
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							Thr-137 to Cys-145, Ser-157 to Gly-162, His-176 to Ala-183, Lys-199 to Asn-210, Arg-225 to Gly-230, Asp-248 to Val-254.	AR055: 4, AR052: 3, AR089: 3, AR060: 3, AR104: 2, AR061: 2			122720, 122720, 126340, 126391, 130410, 134790, 138570, 160900, 164731, 173850, 207750, 248600, 258501, 600040, 602225, 602225	
666	HAUAE93	865020	676	73 - 684	2081		Gln-3 to Trp-9, Glu-15 to Asp-25, Asn-59 to Ser-69, Ser-138 to Tyr-145, Glu-147 to Tyr-153.	AR055: 11, AR033: 9, AR104: 9, AR060: 7, AR061: 6, AR052: 6, AR039: 6, AR089: 5, AR096: 4, AR053: 4	19q13.2- q13.3	107741, 113900, 122720, 122720, 126340, 126391, 130410, 134790, 138570, 160900, 164731, 173850, 207750, 248600,	72-93, 34- 57, 160- 179, 96- 116, 185- 201	

667	HAICK45	865026	677	234 - 1376	2082	Met-1 to Phe-9, Gln-16 to Gly-25, Val-42 to Thr-71, Asn-92 to Arg-100, Pro-107 to Lys-117, Leu-153 to Leu-163, Phe-176 to Trp-182, Arg-184 to Gln-192, Glu-250 to Gly-257, Phe-266 to Lys-272.	AR055: 7, AR052: 6, AR096: 5, AR060: 5, AR053: 5, AR033: 5, AR089: 4, AR061: 4, AR104: 3, AR039: 2 L0748: 9, L0794: 6, L0766: 6, L0439: 6, H0574: 3, H0046: 3, H0040: 3, L0662: 3, L0803: 3, L0740: 3, L0747: 3, H0423: 3, H0624: 2, S0358: 2, H0561: 2, L0598: 2, L0520: 2, L0665: 2, L0777: 2, L0758: 2, L0599: 2, S0106: 2, H0543: 2, H0171: 1, S0134: 1, S0218: 1, S0408: 1, S0132: 1, S0300: 1, H0411: 1, S0222: 1, L0623: 1, H0013: 1, L0021: 1, H0575: 1, H0581: 1, H0545: 1, L0163: 1, H0083: 1, H0032: 1, H0090: 1, H0551: 1, H0264: 1, H0647: 1, H0529: 1, L0770: 1, L0642: 1, L0768: 1, L0364: 1, L0649: 1, L0790: 1, L0666: 1,	258501, 600040, 602225, 602225	219-235, 318-334
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668	HBJKI39	865163	678	234 - 536	2083	Arg-5 to Lys-11, Thr-48 to Ile-53.	L0663: 1, H0144: 1, H0547: 1, H0684: 1, H0648: 1, H0436: 1, H0478: 1, L0590: 1, L0608: 1, S0026: 1, S0276: 1, S0424: 1 and H0677: 1.					58-80, 18- 38
							AR055: 13, AR033: 7, AR060: 7, AR061: 7, AR053: 6, AR052: 6, AR089: 5, AR096: 5, AR039: 3, AR104: 3 L0777: 9, L0758: 6, H0424: 4, L0770: 4, H0341: 3, H0617: 3, L0749: 3, L0757: 3, H0661: 2, S0358: 2, H0318: 2, S0049: 2, H0598: 2, H0413: 2, L0763: 2, L0766: 2, L0775: 2, L0789: 2, H0696: 2, L0744: 2, L0751: 2, L0747: 2, L0750: 2, L0752: 2, H0170: 1, H0484: 1, S0354: 1, S0046: 1, S0132: 1, H0587: 1, H0331: 1, H0632: 1, H0250: 1, L0021: 1, S0010: 1, H0581: 1, H0085: 1, H0597: 1, H0081: 1, H0012: 1, H0015: 1, H0615: 1, L0142: 1, H0169: 1, H0163: 1, H0616: 1, H0059: 1,					

669	HAGHY26	865168	679	257 - 646	2084	Gln-34 to Leu-40, Thr-70 to Gly-92.	H0561: 1, H0633: 1, S0144: 1, S0142: 1, S0210: 1, L0769: 1, L0521: 1, L0768: 1, L0794: 1, L0774: 1, L0375: 1, L0806: 1, L0629: 1, L0659: 1, L0666: 1, S0374: 1, H0689: 1, H0660: 1, H0672: 1, S3012: 1, L0748: 1, L0740: 1, L0755: 1, L0603: 1, H0665: 1, S0192: 1 and H0542: 1. AR096: 1, AR060: 1, AR089: 1, AR053: 1, AR039: 1, AR061: 0, AR052: 0, AR033: 0, AR104: 0, AR055: 0 H0052: 64, S0010: 22, L0438: 15, S0222: 13, S0346: 12, S6028: 12, L0366: 10, H0261: 9, T0010: 9, S0036: 9, S0049: 7, H0144: 7, L0439: 7, S0300: 6, L0592: 6, L0749: 5, H0438: 4, H0156: 4, S0051: 4, L0686: 4, S0007: 3, S6026: 3, H0194: 3, L0776: 3, S0028: 3, L0750: 3, L0753: 3, L0759: 3, L0589: 3, S6024: 2, H0441: 2, H0013: 2, H0390: 2,					4-21, 110- 126, 46-62
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670	HCLSJ87	865172	680	40 - 498	2085	Pro-33 to Ser-41, Trp-65 to Ile-72.	H0051: 2, S0388: 2, L0768: 2, L0779: 2, L0684: 2, L0594: 2, L0411: 1, H0170: 1, S0400: 1, S0356: 1, S6016: 1, H0455: 1, N0009: 1, L2250: 1, N0006: 1, H0567: 1, L0471: 1, H0201: 1, L0455: 1, S0038: 1, S0386: 1, L0370: 1, L0638: 1, L0630: 1, L0363: 1, L0774: 1, L0657: 1, S0126: 1, H0696: 1, L0745: 1, L0755: 1, L0758: 1, L0688: 1, S0106: 1, H0667: 1, S0412: 1 and S0021: 1.					109-130
671	HJBAQ50	865176	681	39 - 404	2086		AR039: 2, AR052: 1, AR104: 1, AR060: 1, AR089: 1, AR033: 0, AR053: 0, AR061: 0, AR096: 0, AR055: 0					80-97

672	HTELJ31	865259	682	332 - 808	2087	Trp-7 to Gln-15.	S0010: 1, H0052: 1, S0050: 1, S0366: 1, T0042: 1, S0428: 1 and H0547: 1. AR061: 6, AR055: 5, AR033: 4, AR060: 4, AR053: 3, AR096: 3, AR089: 3, AR052: 3, AR039: 0 L0769: 7, L0754: 7, L0748: 6, L0777: 6, L0759: 5, L0803: 4, L0747: 4, H0041: 3, L0775: 3, S0420: 2, S0358: 2, H0013: 2, H0427: 2, L0794: 2, L0804: 2, L0659: 2, L0789: 2, L0751: 2, L0749: 2, L0752: 2, L0587: 2, L0599: 2, L0603: 2, H0255: 1, S0356: 1, S0045: 1, H0411: 1, H0441: 1, H0009: 1, H0081: 1, H0024: 1, H0014: 1, T0006: 1, H0616: 1, L0536: 1, L0770: 1, L0638: 1, L0761: 1, L0771: 1, L0662: 1, L0767: 1, L0774: 1, L0375: 1, L0653: 1, L0633: 1, L0629: 1, L0636: 1, L0783: 1, L0666: 1, L0665: 1, S0052: 1, H0672: 1, H0436: 1, L0758: 1, S0260:				95-111, 38-54, 77- 93
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673	HPJBE61	865275	683	55 - 495	2088	Asp-12 to Pro-17, Ser-59 to Glu-66, Leu-102 to Gly-119, Pro-130 to Trp-143.	1, L0581: 1, L0604: 1, L0595: 1, L0361: 1 and S0192: 1. AR055: 11, AR096: 7, AR061: 6, AR039: 6, AR052: 5, AR060: 5, AR033: 5, AR089: 4, AR053: 4, AR104: 3 L0751: 7, L0758: 5, L0766: 4, H0250: 3, H0556: 2, H0544: 2, L0769: 2, L0747: 2, H0422: 2, H0265: 1, S0114: 1, S0134: 1, S0116: 1, H0663: 1, S0132: 1, H0586: 1, H0069: 1, H0427: 1, H0309: 1, H0150: 1, H0041: 1, H0510: 1, H0594: 1, S0022: 1, H0606: 1, S0036: 1, H0087: 1, T0042: 1, H0494: 1, L0475: 1, S0438: 1, H0641: 1, S0422: 1, L0771: 1, L0662: 1, L0655: 1, L0783: 1, L0792: 1, L0663: 1, H0672: 1, H0539: 1, S0152: 1, H0187: 1, L0750: 1, H0445: 1, S0434: 1, H0542: 1 and S0424: 1. AR052: 66, AR053: 56,				15-47, 71- 102
674	HLTCU22	865293	684	47 - 730	2089	Ser-83 to Gly-88,				178-196,	

[illegible]

675	HE8DZ49	865322	685	300 - 1565	2090	Lys-20 to Ser-27, Met-62 to Asp-75, Asp-85 to Gln-94, Glu-135 to Arg-160, Asn-195 to Glu-202, Ser-291 to Ser-298, Thr-314 to Leu-332, Pro-342 to Ser-351, Glu-357 to Arg-365.	1, L0756: 1, L0777: 1, L0759: 1, L0596: 1, L0589: 1, L0591: 1, L0599: 1, L0595: 1, L0601: 1, S0026: 1, H0542: 1, S0042: 1 and S0424: 1. AR096: 18, AR053: 15, AR033: 14, AR052: 14, AR060: 14, AR055: 13, AR089: 11, AR104: 10, AR061: 6, AR039: 5 L0731: 9, L0803: 8, L0749: 8, L0748: 5, L0439: 5, L0756: 4, L0759: 4, H0581: 3, L0766: 3, L0747: 3, H0013: 2, H0427: 2, H0052: 2, H0251: 2, H0050: 2, L0794: 2, L0789: 2, L0665: 2, L0777: 2, L0758: 2, L0599: 2, S0134: 1, S0442: 1, S0358: 1, H0411: 1, H0261: 1, H0431: 1, H0455: 1, H0574: 1, H0486: 1, S0010: 1, H0439: 1, H0569: 1, H0014: 1, H0375: 1, H0124: 1, S0036: 1, H0038: 1, S0210: 1, L0371: 1, L0521: 1, L0774: 1, L0809: 1, S0374: 1, L0438: 1, H0696: 1, S0044: 1,					366-396
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676	HEGAC86	865369	686	511 - 858	2091	Met-1 to Ala-13, Gly-29 to Trp-34, Pro-36 to Ala-42, Ser-70 to Cys-75.	H0436: 1, S0390: 1, L0750: 1, L0752: 1, S0276: 1, H0543: 1 and H0423: 1. AR055: 9, AR033: 7, AR060: 4, AR089: 4, AR052: 4, AR061: 4, AR096: 3, AR053: 3, AR039: 1, AR104: 0 L0776: 3, L0758: 3, L0764: 2, L0803: 2, L0805: 2, H0522: 2, L0748: 2, L0777: 2, H0550: 1, L0468: 1, S0280: 1, S0010: 1, L0471: 1, L0804: 1, L0657: 1, L0665: 1, S0126: 1, L0743: 1, L0750: 1, L0756: 1 and L0780: 1.	16q22	103850, 114835, 121360, 217800, 218030	90-106
677	HOUDS89	866090	687	20 - 559	2092	Glu-2 to Arg-14, Tyr-134 to Asp-140, Gln-151 to Asn-158.	AR052: 9, AR096: 7, AR060: 5, AR089: 5, AR053: 5, AR039: 4, AR055: 4, AR033: 4, AR104: 3, AR061: 3 L0769: 6, L0809: 4, H0585: 3, H0617: 3, H0181: 2, L0763: 2, L0768: 2, L0803: 2, L0805: 2, L0789: 2, S0040: 1, H0282: 1, L0796: 1, L0800: 1, L0794: 1, L0653: 1, L0776: 1,			46-72, 80- 98, 111- 127, 16-32

678	HCEVF41	866297	688	172 - 1149	2093	Gln-49 to Glu-54, Gln-67 to Ile-74.	L0792: 1, L0793: 1, H0576: 1 and L0759: 1. AR039: 7, AR053: 5, AR096: 5, AR104: 3, AR089: 3, AR061: 3, AR060: 3, AR033: 2, AR052: 1, AR055: 1 H0618: 9, L0758: 9, H0253: 5, H0620: 3, L0439: 3, L0747: 3, H0255: 2, S0356: 2, H0617: 2, L0770: 2, S0028: 2, L0756: 2, L0361: 2, H0624: 1, S0040: 1, H0295: 1, H0656: 1, S0358: 1, S0444: 1, S0360: 1, S0045: 1, H0261: 1, S0222: 1, H0392: 1, H0085: 1, H0597: 1, H0545: 1, H0150: 1, H0009: 1, H0012: 1, H0606: 1, H0165: 1, H0598: 1, H0135: 1, H0272: 1, S0448: 1, L0644: 1, L0764: 1, L0767: 1, L0806: 1, L0809: 1, L0664: 1, S0374: 1, S0126: 1, H0670: 1, H0696: 1, S0037: 1, L0742: 1, L0740: 1, L0750: 1, L0777: 1, L0780: 1, L0731: 1, S0011: 1, H0667: 1, S0398: 1 and S0462: 1.				126-150, 274-300, 155-174, 18-39, 202-226, 1-17, 92- 108, 243- 259
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679	HPWBO25	866302	689	62 - 694	2094	Pro-72 to Met-78.	AR089: 1, AR053: 1, AR033: 1, AR060: 1, AR039: 0, AR061: 0, AR096: 0, AR055: 0, AR052: 0, AR104: 0 L0604: 2, H0255: 1, H0018: 1, S0366: 1, S0044: 1, S0037: 1, S0028: 1 and S0031: 1.			150-183, 96-135, 76-95, 117-135, 54-70
680	HSKNJ56	866374	690	15 - 593	2095	Leu-37 to Lys-43, Pro-177 to Thr-184.	AR061: 3, AR096: 3, AR033: 2, AR060: 1, AR089: 1, AR052: 1, AR055: 1, AR104: 0, AR039: 0, AR053: 0 L0439: 5, L0435: 2, H0624: 1, S3012: 1, S3014: 1, L0747: 1 and L0749: 1.			103-123, 161-177
681	HSSKF43	866388	691	118 - 744	2096		AR089: 8, AR096: 7, AR104: 7, AR055: 6, AR060: 6, AR039: 6, AR052: 6, AR033: 5, AR053: 5, AR061: 3 L0665: 3, L0598: 2, L0519: 2, L0663: 2, L0754: 2, L0747: 2, H0265: 1, S0134: 1, H0640: 1, H0409: 1, H0581: 1, L0471: 1, H0135: 1, L0435: 1, H0509: 1, L0800: 1, L0803: 1,			84-109, 148-171, 6-24, 27- 43, 174- 190, 192- 208



682	HSKJK72	866398	692	13 - 429	2097	Gln-35 to Gly-45, Cys-113 to Val-123.	S0374: 1, L0438: 1, H0520: 1 and L0592: 1. AR055: 9, AR060: 6, AR052: 6, AR089: 5, AR061: 5, AR033: 5, AR053: 4, AR096: 4, AR039: 2, AR104: 2 H0545: 1 and S3014: 1.				61-82
683	HACBC20	866413	693	291 - 635	2098		AR052: 11, AR096: 6, AR053: 5, AR089: 5, AR060: 4, AR033: 4, AR061: 4, AR055: 4, AR039: 3, AR104: 3 L0805: 6, L0770: 5, L0803: 5, L0777: 5, L0776: 3, L0740: 3, L0750: 3, L0759: 3, H0599: 2, T0041: 2, H0670: 2, L0439: 2, L0747: 2, H0341: 1, S0418: 1, S0280: 1, H0318: 1, H0014: 1, S0250: 1, H0252: 1, H0328: 1, H0087: 1, H0494: 1, H0633: 1, L0763: 1, L0796: 1, L0651: 1, L0657: 1, L0558: 1, L0809: 1, L0789: 1, L0790: 1, L0666: 1, L0663: 1, H0519: 1, H0689: 1, H0710: 1, S0152: 1, S3014: 1, L0755:				1-35, 31- 60, 74-107

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688	HCMTA51	866733	698	21 - 743	2103				AR061: 1, AR039: 0, AR052: 0, AR053: 0 S0001: 2, H0059: 2, S0031: 2, S0282: 1, S0045: 1, H0619: 1, H0574: 1, S0050: 1, H0124: 1, S0144: 1, S0053: 1, S0044: 1, S0390: 1 and S0260: 1.				438-454, 56-72, 500-516, 1-17
689	HSAZG23	866813	699	135 - 467	2104				AR089: 36, AR096: 27, AR053: 21, AR033: 20, AR060: 19, AR052: 18, AR039: 16, AR055: 12, AR104: 8, AR061: 5 L0523: 2, S0114: 1, L0748: 1 and L0749: 1.				103-128, 12-28, 61- 77, 137- 153
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691	HTXNU58	866980	701	1158 - 1478	2106	Glu-5 to Trp-12, Leu-54 to Thr-59.	4, S0046: 3, H0052: 2, S0422: 2, L0803: 2, L0666: 2, L0663: 2, S0330: 2, S3014: 2, L0750: 2, H0686: 1, H0346: 1, S0420: 1, H0619: 1, H0431: 1, H0156: 1, H0575: 1, H0590: 1, H0581: 1, H0046: 1, H0123: 1, H0050: 1, H0373: 1, H0083: 1, H0266: 1, H0553: 1, H0628: 1, H0598: 1, S0036: 1, H0100: 1, H0494: 1, H0561: 1, S0440: 1, L0662: 1, L0794: 1, L0381: 1, L0650: 1, L0776: 1, L0540: 1, L0791: 1, H0144: 1, S0328: 1, S0152: 1, H0696: 1, S0406: 1, L0752: 1, S0260: 1, S0436: 1, L0604: 1, L0593: 1, S0242: 1 and H0543: 1.	4, S0046: 3, H0052: 2, S0422: 2, L0803: 2, L0666: 2, L0663: 2, S0330: 2, S3014: 2, L0750: 2, H0686: 1, H0346: 1, S0420: 1, H0619: 1, H0431: 1, H0156: 1, H0575: 1, H0590: 1, H0581: 1, H0046: 1, H0123: 1, H0050: 1, H0373: 1, H0083: 1, H0266: 1, H0553: 1, H0628: 1, H0598: 1, S0036: 1, H0100: 1, H0494: 1, H0561: 1, S0440: 1, L0662: 1, L0794: 1, L0381: 1, L0650: 1, L0776: 1, L0540: 1, L0791: 1, H0144: 1, S0328: 1, S0152: 1, H0696: 1, S0406: 1, L0752: 1, S0260: 1, S0436: 1, L0604: 1, L0593: 1, S0242: 1 and H0543: 1.	AR096: 8, AR052: 8, AR055: 7, AR060: 5, AR089: 4, AR033: 4, AR039: 4, AR104: 4, AR061: 4, AR053: 3 L0743: 5, L0758: 5, H0657: 4, S0410: 4, L0769: 4, L0749: 4, L0777: 4, H0556: 3, L0770: 3, L0794:	85-106, 25-41	
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693	HRADG27	867187	703	194 - 526	2108				1, S3014: 1, S0028: 1, L0439: 1, L0740: 1, L0756: 1, L0786: 1, L0780: 1, L0755: 1, H0445: 1, S0434: 1, S0436: 1, L0581: 1, L0595: 1, L0601: 1, H0667: 1, S0192: 1, H0542: 1 and S0424: 1.				33-50, 64-80
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696	HAPNX79	867380	706	345 - 1085	2111	Glu-28 to Asp-34, Ala-71 to Gly-77, Leu-91 to Ser-99, Ala-180 to Gly-185, Arg-223 to Pro-229.	H0641: 1, L0638: 1, L4747: 1, L0637: 1, L0800: 1, L0645: 1, L0773: 1, L0768: 1, L0364: 1, L0499: 1, L0803: 1, L0775: 1, L0378: 1, L0806: 1, L0655: 1, L0659: 1, L0526: 1, L0809: 1, L0666: 1, T0068: 1, H0658: 1, H0670: 1, H0672: 1, H0651: 1, H0522: 1, H0436: 1, L0439: 1, L0740: 1, L0786: 1, H0445: 1, H0542: 1, H0543: 1 and S0424: 1.					228-246
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697	HAJBZ74	867423	707	1228 - 398	2112			L0364: 1, L0794: 1, L0551: 1, L0533: 1, L0803: 1, L0650: 1, L0774: 1, L0376: 1, L0653: 1, L0657: 1, L0559: 1, L0544: 1, H0697: 1, H0701: 1, T0068: 1, H0693: 1, H0520: 1, H0547: 1, H0593: 1, H0690: 1, H0682: 1, H0435: 1, S0378: 1, H0710: 1, H0521: 1, S0044: 1, H0694: 1, H0555: 1, H0576: 1, L0612: 1, H0540: 1, S0037: 1, S3014: 1, S0028: 1, L0744: 1, L0751: 1, L0786: 1, L0779: 1, L0752: 1, L0755: 1, S0260: 1, S0436: 1, L0589: 1, L0590: 1, L0592: 1, L0601: 1, S0026: 1, H0653: 1, S0194: 1, H0542: 1, S0424: 1, S0458: 1 and H0506: 1.	Xp11.3- p11.23	300047, 300062, 300071, 300110, 300600, 301000, 301000, 301830.	157-173, 94-110, 18-34, 199-215
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698	HKATA81	867546	708	51 - 467	2113	Ser-39 to Asn-45, Asn-103 to Ser-109.	L0542: 2, L0666: 2, L0352: 2, L0754: 2, L0756: 2, L0731: 2, L0596: 2, S0134: 1, H0393: 1, S0222: 1, L0021: 1, T0082: 1, L0471: 1, H0012: 1, H0135: 1, H0494: 1, H0560: 1, H0561: 1, H0633: 1, H0529: 1, L0803: 1, L0774: 1, L0806: 1, H0651: 1, H0539: 1, H0521: 1, H0555: 1, S0028: 1, S0032: 1, L0748: 1, L0747: 1, L0749: 1, L0592: 1, L0608: 1, L0366: 1, H0543: 1 and L0600: 1. AR096: 6, AR053: 5, AR052: 5, AR060: 4, AR039: 4, AR033: 4, AR089: 4, AR104: 3, AR055: 2, AR061: 1 S0007: 4, L0731: 3, L0748: 2, L0747: 2, H0686: 1, H0484: 1, S0420: 1, H0580: 1, S0278: 1, H0098: 1, S0346: 1, H0688: 1, H0644: 1, H0413: 1, H0512: 1, L0646: 1, L0774: 1, L0775: 1, H0519: 1, H0626: 1, L0750: 1, L0752: 1 and L0592: 1.	304020, 309470, 309500, 309610, 309850, 310500, 311050, 312060, 312600	1-31, 51- 77, 117- 138
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699	HPMLG49	867555	709	135 - 1172	2114	Ala-28 to Tyr-34, Lys-56 to Cys-64, Gly-191 to Gly-196, Lys-339 to Asp-346.	AR055: 10, AR033: 9, AR060: 9, AR052: 7, AR089: 7, AR061: 6, AR039: 4, AR096: 4, AR053: 4, AR104: 2 H0023: 6, H0266: 5, H0286: 5, H0038: 4, S3014: 3, L0439: 3, S0011: 3, S0046: 2, H0635: 2, H0510: 2, H0616: 2, S0404: 2, H0436: 2, S0027: 2, S0040: 1, S0134: 1, S0116: 1, S0442: 1, S0444: 1, S0410: 1, H0393: 1, H0549: 1, H0431: 1, H0455: 1, H0600: 1, H0599: 1, T0082: 1, T0115: 1, H0544: 1, H0545: 1, H0563: 1, L0471: 1, H0267: 1, H0292: 1, S0214: 1, H0031: 1, H0644: 1, S0036: 1, H0163: 1, S0440: 1, L0662: 1, L0803: 1, L0805: 1, L0656: 1, L0558: 1, L0517: 1, L0809: 1, L0665: 1, H0144: 1, L0438: 1, H0520: 1, H0710: 1, H0522: 1, H0696: 1, H0478: 1, S0028: 1, S0206: 1, L0749: 1, S0434: 1, S0436: 1, L0596: 1, L0603: 1,			3-26, 126- 153, 198- 224, 163- 181, 287- 305, 237- 253, 97- 115, 36- 52, 77-93
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700	HPMJN59	867569	710	87 - 665	2115		H0667: 1 and H0136: 1, AR039: 54, AR033: 32, AR053: 30, AR096: 29, AR052: 29, AR104: 27, AR055: 26, AR089: 22, AR060: 19, AR061: 13 H0644: 2				65-81, 130-146
701	HKAED76	867582	711	49 - 906	2116		AR096: 3, AR052: 1, AR033: 1, AR089: 0, AR055: 0, AR053: 0, AR060: 0, AR061: 0, AR104: 0, AR039: 0 S0192: 11, L0731: 10, L0748: 8, L0659: 7, L0757: 7, H0036: 6, S0360: 5, L0754: 5, L0747: 5, L0599: 5, H0328: 4, L0598: 4, L0740: 4, L0779: 4, H0575: 3, H0251: 3, L0749: 3, L0759: 3, H0486: 2, S0280: 2, L0021: 2, S0250: 2, H0644: 2, H0163: 2, H0494: 2, L0369: 2, L0520: 2, L0770: 2, L0637: 2, L0773: 2, L0662: 2, L0526: 2, L0666: 2, L0665: 2, H0144: 2, S0126: 2, H0648: 2, L0751: 2, L0750: 2, L0752: 2, L0755: 2, L0758: 2,				195-222, 82-107, 49-70, 5- 33, 118- 144, 157- 179, 139- 155

702	HSPAD49	867588	712	228 -	2117	L0362: 2, S0026: 2, S0194: 2, S0196: 2, H0717: 1, L0002: 1, S0212: 1, H0669: 1, H0661: 1, S0418: 1, S0356: 1, S0442: 1, S0358: 1, H0489: 1, H0329: 1, H0339: 1, H0208: 1, H0411: 1, H0587: 1, S0414: 1, H0013: 1, H0318: 1, H0123: 1, H0050: 1, H0373: 1, H0266: 1, S0318: 1, H0687: 1, H0615: 1, H0039: 1, H0622: 1, L0194: 1, H0135: 1, H0591: 1, H0551: 1, T0069: 1, L0769: 1, L0772: 1, L0372: 1, L0768: 1, L0766: 1, L0649: 1, L0375: 1, L0805: 1, L0653: 1, L0518: 1, L0783: 1, L0647: 1, L0788: 1, L0664: 1, S0374: 1, H0689: 1, H0658: 1, H0670: 1, H0651: 1, S0330: 1, H0539: 1, H0521: 1, S3012: 1, S0390: 1, S3014: 1, S0027: 1, L0744: 1, L0745: 1, H0445: 1, H0595: 1, H0707: 1, L0589: 1, L0605: 1, S0242: 1, H0543: 1 and S0458: 1.	AR089: 2, AR096: 1,	80-96, 40-
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703	HARMV22	867612	713	183 - 494	536		AR060: 1, AR053: 1, AR104: 1, AR033: 1, AR061: 1, AR039: 0, AR055: 0 L0754: 4, L0809: 2, L0666: 2, S0330: 2, L0777: 2, H0663: 1, H0600: 1, H0592: 1, H0586: 1, H0644: 1, H0494: 1, L0772: 1, L0662: 1, L0794: 1, L0665: 1, S0328: 1, H0518: 1, S0004: 1, H0478: 1, L0439: 1, L0779: 1, L0731: 1 and L0759: 1.				56, 18-34
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704	HSDIY76	867686	714	13 - 1020	2119	Leu-134 to Lys-139.	AR089: 10, AR033: 9, AR060: 8, AR096: 3, AR055: 2, AR061: 2, AR039: 2, AR053: 2, AR052: 1, AR104: 1	AR089: 10, AR033: 9, AR060: 8, AR096: 3, AR055: 2, AR061: 2, AR039: 2, AR053: 2, AR052: 1, AR104: 1	H0543: 1 and H0423: 1. H0485: 1, L0595: 1, L0601: 1, S0106: 1, H0668: 1, L0485: 1, L0595: 1, L0601: 1, L0750: 1, L0591: 1, H0672: 1, L0754: 1, L0747: 1, H0684: 1, H0670: 1, L0663: 1, L0438: 1, H0519: 1, L0383: 1, L0809: 1, L0657: 1, L0515: 1, L0658: 1, L0784: 1, L0654: 1, L0768: 1, L0375: 1, L0651: 1, L0764: 1, L0767: 1, H0647: 1, S0002: 1, L0761: 1, H0059: 1, S0450: 1, H0634: 1, H0272: 1, H0623: 1, H0553: 1, H0674: 1, S0051: 1, H0188: 1, L0483: 1, H0041: 1, H0057: 1, H0309: 1, T0110: 1, H0545: 1, H0270: 1, H0251: 1, H0592: 1, H0586: 1, H0333: 1, S0410: 1, H0619: 1, H0556: 1, S0418: 1, S0360: 2, L0608: 2, L0593: 2, L0752: 2, L0757: 2, L0758:	1p32-p34	120950, 120960, 130500, 133200, 138140,	304-320, 5-21, 31- 47, 255- 271
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705	HPJEV/26	867728	715	132 - 848	2120	Met-1 to Arg-6, Asp-64 to Leu-75, Arg-80 to Tyr-88, Lys-107 to Leu-114, Leu-159 to Lys-169.	S0003: 1, H0031: 1, L0779: 1, S0260: 1 and L0366: 1.	168360, 171760, 171760, 176100, 176100, 178300, 187040, 230000, 255800, 600101, 600650, 600650, 600722, 600722	133-155, 186-203
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706	HPJEV91	867729	716	208 - 531	2121	Ile-2 to Thr-7, Tyr-74 to Val-79.	AR055: 8, AR096: 5, AR060: 5, AR061: 4, AR033: 4, AR053: 4, AR089: 3, AR052: 3, AR039: 2, AR104: 0 H0486: 2, H0494: 2, L0749: 2, L0759: 2, L0591: 2, L0361: 2, H0676: 1, S0003: 1, H0688: 1, H0553: 1, L0764: 1, L0768: 1, L0794: 1, L0766: 1, L0803: 1, L0792: 1, L0793: 1,	H0530: 1, L0471: 1, T0010: 1, S0340: 1, H0328: 1, H0688: 1, H0622: 1, L0483: 1, H0553: 1, H0644: 1, H0591: 1, H0038: 1, H0264: 1, H0494: 1, H0625: 1, S0372: 1, H0633: 1, L0769: 1, L0796: 1, L0761: 1, L0649: 1, L0775: 1, L0776: 1, L0809: 1, L0792: 1, L0666: 1, L0663: 1, L0664: 1, H0144: 1, H0689: 1, H0658: 1, S0152: 1, H0436: 1, L0749: 1, L0750: 1, L0779: 1, L0752: 1, L0731: 1, L0758: 1, L0591: 1, L0608: 1, L0362: 1, H0668: 1 and S0026: 1.				37-74, 14- 30
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707	HAMGK18	867752	717	33 - 485	2122	Met-4 to Gln-9, Gln-16 to Pro-21, Phe-60 to Asp-67, Ser-118 to Ser-129, Thr-134 to Tyr-144.	L0438: 1, H0520: 1, S0126: 1, H0659: 1, H0648: 1, S0152: 1, L0755: 1 and S0436: 1. AR033: 5, AR055: 4, AR052: 4, AR053: 3, AR104: 3, AR060: 3, AR096: 3, AR089: 2, AR039: 1, AR061: 1 S0126: 6, H0046: 4, S0003: 3, L0794: 3, L0766: 3, L0439: 3, L0747: 3, L0759: 3, S0278: 2, L0805: 2, L0740: 2, L0745: 2, L0755: 2, L0595: 2, H0624: 1, H0170: 1, S0116: 1, H0341: 1, H0638: 1, S0420: 1, S0442: 1, S0358: 1, H0437: 1, H0574: 1, H0036: 1, H0581: 1, L0040: 1, H0457: 1, H0373: 1, S0214: 1, H0039: 1, H0031: 1, H0598: 1, H0090: 1, H0616: 1, H0551: 1, H0560: 1, H0646: 1, S0426: 1, L0769: 1, L0662: 1, L0803: 1, L0776: 1, L0438: 1, H0659: 1, H0658: 1, H0648: 1, S0152: 1, H0521: 1, H0522: 1, L0780: 1, L0758: 1,						102-118
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708	HCHOH94	867777	718	55 - 570	2123	Arg-32 to Ser-39, Pro-64 to Ser-69.	S0436: 1 and S0242: 1. AR055: 2, AR033: 2, AR089: 1, AR052: 1, AR060: 1, AR096: 1, AR061: 1, AR053: 1, AR104: 0, AR039: 0 H0484: 1, S0358: 1, H0069: 1, T0041: 1 and H0543: 1.			121-151, 68-84, 145-161
709	HPJDA25	867778	719	336 - 818	2124	Ser-4 to Ser-14, Pro-39 to Ser-44.	AR055: 8, AR060: 4, AR033: 4, AR061: 4, AR052: 3, AR096: 3, AR089: 3, AR039: 2, AR104: 1, AR053: 1 H0553: 1, S0152: 1 and H0423: 1.			95-123, 43-59
710	HIACF33	867890	720	187 - 528	2125	Pro-22 to Glu-27, Leu-69 to Ser-76, Gln-107 to Glu-114.	AR096: 45, AR089: 41, AR033: 27, AR060: 22, AR053: 21, AR052: 17, AR039: 17, AR055: 15, AR104: 11, AR061: 8 L0753: 2, S0114: 1, H0486: 1, H0166: 1, T0041: 1, H0521: 1, H0444: 1, L0366: 1, H0543: 1 and H0677: 1.			48-69
711	HHFMP57	867925	721	2353 - 1079	2126	Cys-6 to Arg-20, Arg-27 to Glu-38, Leu-165 to Ala-171,	AR055: 9, AR096: 6, AR033: 6, AR060: 6, AR052: 5, AR061: 4,			252-268, 391-407, 317-333,

					Gly-184 to Ser-196, Arg-204 to Asn-209, Pro-241 to Glu-246.	AR053: 4, AR089: 3, AR104: 2, AR039: 1 L0748: 5, H0656: 3, S0045: 3, H0486: 3, H0599: 2, H0318: 2, H0266: 2, H0682: 2, H0658: 2, H0436: 2, S0028: 2, H0542: 2, H0265: 1, H0556: 1, S0040: 1, H0458: 1, S0360: 1, H0619: 1, H0392: 1, H0635: 1, S0280: 1, H0042: 1, H0581: 1, H0052: 1, L0471: 1, H0620: 1, H0024: 1, H0107: 1, T0010: 1, H0179: 1, H0271: 1, H0328: 1, H0264: 1, H0488: 1, H0494: 1, H0529: 1, L0761: 1, L0766: 1, L0629: 1, L0657: 1, L0636: 1, L0666: 1, L0665: 1, H0519: 1, H0689: 1, H0670: 1, H0521: 1, S0032: 1, L0743: 1, L0744: 1, L0747: 1, L0750: 1, L0731: 1, L0758: 1, H0543: 1, H0423: 1, H0422: 1 and H0352: 1.				79-95, 295-311, 148-164
712	HELGD39	867938	722	83 - 856	2127	Met-1 to Val-7.	AR096: 79, AR052: 61, AR053: 59, AR039: 54, AR089: 51, AR033: 44, AR104: 44, AR060: 37,			131-148, 210-226

713	HMACX92	867995	723	173 - 1159	2128	Glu-129 to Trp-136, Asn-312 to Glu-318.	AR055: 36, AR061: 24 S0222: 2, H0038: 2, H0519: 2, L0756: 2, S0045: 1, S0300: 1, H0486: 1, S0010: 1, H0194: 1, L0157: 1, L0171: 1, H0615: 1, H0617: 1, H0616: 1, L0794: 1, L0665: 1, H0658: 1, L0779: 1, L0752: 1 and S0398: 1. AR061: 5, AR060: 3, AR055: 3, AR033: 2, AR089: 2, AR096: 2, AR052: 2, AR104: 1, AR053: 1, AR039: 0 S0144: 4, L0803: 2, H0682: 2, H0521: 2, H0295: 1, L0005: 1, H0645: 1, H0549: 1, T0060: 1, H0327: 1, H0545: 1, H0050: 1, H0012: 1, H0620: 1, H0510: 1, H0687: 1, H0617: 1, H0059: 1, S0438: 1, S0440: 1, H0509: 1, H0641: 1, S0002: 1, L0646: 1, L0800: 1, L0374: 1, L0794: 1, L0804: 1, L0775: 1, L0656: 1, L0809: 1, L0790: 1, L0664: 1, S0052: 1, H0520: 1, L0749: 1, H0653: 1 and					165-188, 294-310, 270-286, 19-35, 76- 92
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714	HMKCV39	868004	724	25 - 354	2129	Ala-3 to Gly-9.	S0194: 1. AR096: 5, AR053: 4, AR089: 3, AR039: 3, AR052: 3, AR033: 3, AR060: 3, AR104: 2, AR061: 2, AR055: 1 H0295: 6, L0758: 6, H0545: 4, L0754: 4, L0759: 3, H0170: 2, H0255: 2, L0766: 2, L0649: 2, L0665: 2, H0696: 2, H0177: 1, H0549: 1, H0392: 1, H0587: 1, H0333: 1, H0327: 1, L0695: 1, H0328: 1, H0674: 1, H0616: 1, S0142: 1, H0529: 1, L0762: 1, L0769: 1, L0800: 1, L0658: 1, L0659: 1, L0783: 1, L0809: 1, L0528: 1, H0547: 1, S0136: 1, S0390: 1, L0740: 1, L0747: 1, L0777: 1 and L0752: 1.			51-72, 24- 40
715	HNTOE45	868031	725	10 - 516	2130		AR089: 7, AR033: 6, AR060: 6, AR096: 5, AR039: 3, AR052: 3, AR053: 3, AR055: 2, AR104: 2, AR061: 2 L0527: 2, H0657: 1, H0341: 1, S0222: 1, H0438:			12-35, 49- 70, 123- 140, 142- 158, 90- 106

716	HCUFV69	868130	726	4 - 357	2131	<p>1, T0048: 1, S0049: 1, S0250: 1, S0036: 1, H0087: 1, H0561: 1, L0369: 1, L0388: 1, L0518: 1, H0520: 1, H0519: 1, H0435: 1, L0366: 1 and L0697: 1.</p> <p>AR089: 16, AR060: 16, AR033: 15, AR061: 2, AR096: 2, AR055: 1, AR104: 1, AR039: 0, AR052: 0, AR053: 0 S0144: 10, L0775: 10, S0278: 6, H0638: 5, H0641: 5, H0580: 4, S0142: 4, H0521: 4, H0522: 4, L0747: 4, S0428: 3, H0402: 2, S0358: 2, S0408: 2, S0140: 2, H0392: 2, H0086: 2, L0520: 2, L0763: 2, L0772: 2, L0771: 2, L0774: 2, L0776: 2, L0526: 2, H0658: 2, L0743: 2, L0751: 2, L0754: 2, L0756: 2, L0605: 2, S0134: 1, S0116: 1, H0662: 1, H0306: 1, S0444: 1, S0360: 1, H0637: 1, S0045: 1, S0222: 1, S6014: 1, H0438: 1, H0592: 1, H0250: 1, H0069: 1, H0575: 1, T0082: 1, H0036: 1,</p>					92-118, 20-36, 62- 78
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717	HMVCZ54	868140	727	203 - 877	2132	Gly-4 to Cys-14.	H0581: 1, H0457: 1, H0354: 1, H0247: 1, H0271: 1, L0055: 1, S0036: 1, S0438: 1, H0646: 1, L0770: 1, L0769: 1, L0764: 1, L0375: 1, L0787: 1, S0053: 1, S0374: 1, H0682: 1, H0648: 1, H0710: 1, L0744: 1, L0755: 1, L0731: 1, L0758: 1, L0603: 1, H0423: 1 and H0352: 1. AR061: 20, AR039: 18, AR053: 15, AR055: 15, AR052: 14, AR033: 13, AR096: 13, AR089: 13, AR104: 12, AR060: 11 L0748: 9, S0422: 6, L0752: 5, S0196: 5, S0212: 4, L0803: 4, L0754: 4, L0749: 4, L0599: 4, S0242: 4, L0790: 3, L0439: 3, L0779: 3, S0360: 2, L0105: 2, H0046: 2, S0003: 2, L0794: 2, L0766: 2, L0775: 2, L0655: 2, L0565: 2, L0352: 2, H0521: 2, L0750: 2, L0777: 2, L0731: 2, L0758: 2, S0436: 2, S0026: 2, H0543: 2, H0624: 1, H0171: 1, S0116: 1, H0483:			24-52, 152-174, 74-90, 184-200, 130-146, 106-122, 54-70
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718	HMSH194	868172	728	364 - 663	2133	Gln-9 to Gly-24, Val-32 to Thr-40, Phe-59 to Gly-66.	1, S0356: 1, S0442: 1, H0580: 1, S0045: 1, S0046: 1, H0643: 1, H0574: 1, T0040: 1, H0052: 1, H0083: 1, H0553: 1, H0708: 1, S0036: 1, H0135: 1, H0591: 1, H0038: 1, H0641: 1, L0769: 1, L0639: 1, L0806: 1, L0659: 1, L0809: 1, L0793: 1, L0438: 1, S0126: 1, H0672: 1, H0539: 1, H0522: 1, H0696: 1, S0390: 1 and L0757: 1.	1p35-p34	118210, 120550, 120570, 120575, 121800, 130500, 133200, 138140, 138971, 168360, 171760, 171760, 172411, 176100, 176100, 178300, 185470,	42-58	
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719	HAPTE80	868238	729	150 - 1091	2134	Ser-15 to Leu-22, Glu-166 to Glu-173, Lys-181 to Met-186.	AR052: 8, AR055: 8, AR033: 6, AR053: 5, AR060: 5, AR089: 4, AR096: 4, AR061: 3, AR104: 2, AR039: 1 H0144: 3, S0114: 1, H0619: 1, T0114: 1, H0575: 1, L0483: 1, H0435: 1, H0539: 1, L0439: 1, L0588: 1 and L0592: 1.						15-41, 41- 63, 86-107
720	HSLJC72	868253	730	74 - 412	2135	Tyr-10 to Asp-15, Asp-64 to Gly-72, Gln-74 to Lys-85.	AR052: 866, AR096: 756, AR089: 424, AR060: 372, AR053: 278, AR104: 179, AR033: 176, AR039: 159, AR061: 108, AR055: 30						67-95, 1- 19, 52-68, 24-40
721	HWBCR21	868312	731	173 - 514	2136	Phe-95 to Glu-105.	AR053: 4, AR052: 4, AR096: 4, AR039: 4, AR033: 3, AR089: 3, AR060: 2, AR104: 2, AR055: 2, AR061: 1 S0408: 1, H0580: 1, H0486: 1, H0012: 1, L0794: 1, L0803: 1, L0805: 1, L0790: 1, L0792: 1 and						

722	HKAAU27	868368	732	1016 - 1375	2137	Leu-40 to Asp-48, Lys-92 to Gly-98.	H0522: 1. AR096: 5, AR052: 4, AR033: 4, AR053: 3, AR089: 3, AR055: 2, AR104: 2, AR060: 2, AR061: 2, AR039: 0 H0617: 2, L0662: 2, L0779: 2, L0759: 2, H0716: 1, H0583: 1, H0580: 1, H0549: 1, H0643: 1, L0021: 1, H0581: 1, H0051: 1, H0688: 1, H0059: 1, H0494: 1, H0695: 1, L0770: 1, L0761: 1, L0766: 1, L0803: 1, L0809: 1, H0436: 1, H0540: 1, L0756: 1, L0608: 1, L0603: 1 and S0026: 1.				71-91, 15- 35
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725	HWAFN46	868440	735	242 - 601	2140	Pro-28 to Pro-34, Glu-46 to Lys-51, Ala-73 to Pro-80.	AR052: 2, AR096: 2, AR033: 1, AR055: 1, AR053: 1, AR060: 1, AR089: 1, AR061: 1, AR104: 0				79-103, 52-69	

726	HWAET91	868475	736	201 - 641	2141	Ser-35 to Gln-42, Ser-94 to Glu-101.	H0581: 1 and S0250: 1, AR096: 3, AR089: 2, AR039: 2, AR052: 2, AR060: 2, AR053: 1, AR033: 1, AR061: 1, AR055: 1, AR104: 1 H0581: 1, L0766: 1 and L0749: 1.			55-81, 123-141, 79-95, 43- 59, 18-34
727	HDPMO69	868484	737	120 - 941	2142	Ser-12 to Tyr-18, Glu-34 to Val-45, Pro-71 to Asn-76, Tyr-84 to Lys-95, Thr-153 to Tyr-158, Glu-241 to Tyr-250, Asp-252 to Gln-263.	AR060: 1, AR096: 1, AR089: 1, AR104: 1, AR055: 1, AR061: 1, AR053: 0, AR033: 0, AR039: 0, AR052: 0 S0036: 2, L0754: 2, L0596: 2, T0049: 1, H0632: 1, H0069: 1, H0098: 1, H0581: 1, H0375: 1, L0794: 1, L0766: 1, L0803: 1, H0519: 1, H0660: 1, H0521: 1, H0522: 1, L0745: 1, S0196: 1 and H0423: 1.			93-120, 215-231
728	HELM41	868568	738	322 - 1812	2143	Met-1 to Arg-7, Leu-11 to Lys-18, Ser-25 to Trp-33, Asn-67 to Asn-73, Glu-133 to Leu-147.	AR055: 8, AR060: 5, AR052: 5, AR033: 4, AR053: 4, AR039: 4, AR089: 3, AR096: 3, AR061: 2, AR104: 2 L0748: 11, L0438: 4, L0758: 4, H0038: 3, H0521: 3, L0731: 3, S0222: 2,			102-122, 150-166, 275-291, 393-409, 244-260, 170-186

729	HEQCA95	868765	739	75 - 614	2144	Gln-21 to Cys-27.	H0333: 2, H0050: 2, T0042: 2, L0794: 2, L0766: 2, L0664: 2, H0144: 2, L0759: 2, L0593: 2, H0484: 1, S0418: 1, S0442: 1, S0410: 1, S0045: 1, H0393: 1, L0717: 1, H0411: 1, S0278: 1, H0586: 1, H0642: 1, S0010: 1, S0474: 1, H0421: 1, H0046: 1, H0457: 1, H0051: 1, S0250: 1, H0615: 1, H0039: 1, H0674: 1, H0059: 1, L0564: 1, H0561: 1, S0422: 1, S0426: 1, L0763: 1, L0372: 1, L0641: 1, L0764: 1, L0803: 1, L0774: 1, L0809: 1, L0665: 1, H0698: 1, S0378: 1, H0518: 1, S0152: 1, S0406: 1, S3014: 1, S0027: 1, L0754: 1, L0747: 1, L0749: 1, L0786: 1, L0779: 1, L0752: 1, L0755: 1, L0604: 1, S0192: 1, S0242: 1, H0543: 1 and S0021: 1.				97-128, 27-55, 64-86, 140-157
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730	HAGEG94	868792	740	134 - 580	2145	Thr-6 to Glu-11, Lys-14 to Cys-20, Ser-51 to Ala-58, His-140 to Thr-148.	S0358: 9, H0544: 2, H0545: 2, H0551: 2, S0002: 2, L0803: 2, H0672: 2, L0755: 2, S0420: 1, S0376: 1, S0278: 1, H0635: 1, L0022: 1, H0042: 1, H0575: 1, H0204: 1, H0266: 1, L0194: 1, H0644: 1, H0591: 1, H0634: 1, H0488: 1, H0623: 1, S0344: 1, S0426: 1, L0771: 1, L0804: 1, S0053: 1, H0547: 1, H0435: 1, H0696: 1, S0406: 1, L0751: 1, L0757: 1, S0434: 1, L0591: 1 and S0458: 1. AR055: 8, AR060: 5, AR096: 5, AR061: 4, AR052: 4, AR033: 4, AR089: 4, AR053: 3, AR104: 3, AR039: 2 H0056: 5, L0775: 3, L0439: 3, H0170: 2, S0124: 2, L0740: 2, L0786: 2, S0420: 1, S0442: 1, H0587: 1, H0013: 1, S0010: 1, S0003: 1, H0032: 1, L0763: 1, L0770: 1, L0764: 1, L0768: 1, L0803: 1, L0793: 1, L0666: 1, H0539: 1, L0779: 1, L0777: 1, L0759:					92-108, 73-89
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731	HWAFX90	868808	741	146 - 487	2146	Gln-58 to Val-63.	1, S0434: 1, S0436: 1 and H0543: 1. AR089: 16, AR033: 7, AR060: 7, AR104: 5, AR096: 3, AR055: 2, AR052: 2, AR053: 2, AR061: 1, AR039: 1 S0328: 9, L0770: 7, S0418: 6, S0410: 5, H0486: 5, L0455: 3, H0494: 3, H0659: 3, H0666: 3, H0648: 3, L0752: 3, H0624: 2, H0663: 2, H0638: 2, S0420: 2, S0358: 2, S0007: 2, H0393: 2, H0013: 2, H0581: 2, L0471: 2, S0438: 2, S0440: 2, S0144: 2, L0637: 2, L0766: 2, L0651: 2, L0518: 2, L0382: 2, L0519: 2, L0665: 2, H0672: 2, S0380: 2, L0592: 2, H0543: 2, H0171: 1, H0713: 1, T0049: 1, H0583: 1, H0650: 1, H0656: 1, S0354: 1, S0376: 1, S0408: 1, T0008: 1, H0637: 1, H0580: 1, H0351: 1, H0392: 1, H0592: 1, T0114: 1, H0635: 1, H0706: 1, S0182: 1, H0421: 1, H0052: 1, H0571: 1, H0615:	2p22-p21	120435, 120435, 126600, 135300, 136435, 152790, 152790, 157170, 182601, 278300, 601071, 601771, 602134	90-106, 62-78, 35- 51, 14-30
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732	HHFGM33	868870	742	244 - 1005	2147		1, H0688: 1, H0428: 1, T0006: 1, H0644: 1, H0090: 1, H0264: 1, H0488: 1, H0413: 1, H0623: 1, H0059: 1, T0042: 1, L0475: 1, H0561: 1, L0065: 1, S0210: 1, H0529: 1, L0640: 1, L0648: 1, L0768: 1, L0774: 1, L0775: 1, L0379: 1, L0657: 1, L0793: 1, L0666: 1, L0438: 1, H0658: 1, H0660: 1, S0406: 1, H0436: 1, S0390: 1, S3014: 1, L0748: 1, L0750: 1, L0753: 1, L0755: 1, L0758: 1, S0436: 1, H0422: 1 and H0352: 1.				11-37, 71-94, 43-59, 129-145, 104-120, 152-168
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733	HTEQK83	868928	743	500 - 931	2148	Lys-7 to Ser-16, Tyr-70 to Arg-75.	AR060: 13, AR089: 9, AR052: 8, AR096: 8, AR033: 6, AR053: 4, AR061: 4, AR104: 0, AR055: 0 H0250: 60, S0126: 24, H0013: 9, H0124: 9, H0494: 8, H0521: 7, H0428: 6, H0553: 6, H0038: 6, S0027: 6, S0040: 5, T0039: 5, H0050: 5, L0471: 5, H0644: 5, H0135: 5, H0551: 5, T0067: 5, H0144: 5, H0539: 5, S0028: 5, L0439: 5, L0740: 5, H0171: 4, S0356: 4, S0046: 4, H0586: 4, H0486: 4, H0599: 4, H0046: 4, H0024: 4, H0266: 4, S0003: 4, H0040: 4, H0059: 4, S0152: 4, L0603: 4, H0556: 3, S0222: 3, H0574: 3, H0156: 3, S0010: 3, H0581: 3, H0620: 3, H0014: 3, H0015: 3, H0373: 3, S0022: 3, H0031: 3, H0547: 3, H0519: 3, H0522: 3, L0748: 3, H0624: 2, H0265: 2, H0295: 2, S0212: 2, H0484: 2, H0661: 2, H0125: 2, S0418: 2, H0208: 2,				75-103, 28-53, 116-132
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734	HULFK26	868929	744	141 - 839	2149	Lys-7 to Ser-16, Tyr-70 to Arg-75, Pro-135 to Gln-143, Cys-186 to Val-195, Met-221 to Tyr-230.	S0250: 1, S0214: 1, H0328: 1, L0483: 1, H0212: 1, H0708: 1, S0036: 1, H0634: 1, H0488: 1, H0433: 1, H0056: 1, H0623: 1, T0069: 1, H0560: 1, H0561: 1, S0448: 1, S0440: 1, H0509: 1, H0131: 1, S0150: 1, S0144: 1, S0344: 1, S0208: 1, S0210: 1, S0426: 1, H0529: 1, L0384: 1, S0216: 1, S0148: 1, H0593: 1, H0435: 1, H0658: 1, H0666: 1, H0518: 1, S0004: 1, H0134: 1, H0436: 1, S0432: 1, S0390: 1, S3014: 1, L0754: 1, L0746: 1, L0758: 1, L0596: 1, L0605: 1, L0592: 1, L0581: 1, L0593: 1, L0595: 1, S0011: 1, H0668: 1, S0026: 1, S0446: 1 and H0293: 1.			150-183, 75-103, 28-53, 111-128
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735	HSBBS15	869055	745	1523 - 825	2150	Val-25 to Leu-35, Gly-138 to Gly-144.	S0440: 1, H0509: 1, H0131: 1, S0150: 1, S0144: 1, S0344: 1, S0208: 1, S0210: 1, S0426: 1, H0529: 1, L0775: 1, L0384: 1, L0664: 1, S0216: 1, S0148: 1, H0593: 1, H0435: 1, H0658: 1, H0666: 1, H0518: 1, S0004: 1, H0134: 1, H0436: 1, S0432: 1, S0390: 1, S3014: 1, L0754: 1, L0746: 1, L0758: 1, L0596: 1, L0605: 1, L0592: 1, L0581: 1, L0593: 1, L0595: 1, S0011: 1, H0668: 1, S0026: 1, S0446: 1 and H0293: 1.	11				158-175, 91-113, 109-125, 54-70
736	HS2IL80	869056	746	127 - 519	2151	Gly-31 to Ser-38.	AR055: 9, AR060: 6, AR033: 5, AR104: 4, AR061: 2, AR039: 2, AR096: 0, AR089: 0, AR053: 0, AR052: 0 S0388: 2, S0418: 1, S0442: 1, T0040: 1, S0280: 1, H0618: 1, H0253: 1, H0545: 1, S0440: 1, H0641: 1, H0519: 1, S0027: 1, L0759: 1 and H0445: 1.	11				51-68



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737	HUSZB06	869057	747	47 - 904	2152	Arg-21 to Ala-28, Pro-33 to Ala-40, Pro-42 to Gly-50, Val-163 to Leu-173, Gly-246 to Asn-253.	H0506: 1. AR060: 12, AR061: 7, AR089: 7, AR039: 5, AR104: 3, AR033: 3, AR096: 2, AR055: 1, AR053: 0, AR052: 0 L0659: 10, L0665: 9, T0040: 8, L0519: 8, L0759: 8, L0776: 7, L0749: 7, S0418: 6, L0744: 6, L0747: 6, L0758: 6, S0046: 5, H0052: 5, H0457: 5, H0150: 5, L0769: 5, L0766: 5, L0748: 5, H0265: 4, S0420: 4, S0356: 4, S0360: 4, S0010: 4, H0545: 4, H0494: 4, L0662: 4, L0768: 4, L0774: 4, L0775: 4, S0406: 4, L0751: 4, L0754: 4, L0779: 4, H0295: 3, H0484: 3, S0476: 3, H0549: 3, S0222: 3, H0575: 3, H0581: 3, H0421: 3, H0620: 3, S0051: 3, H0687: 3, H0428: 3, L0764: 3, L0666: 3, H0435: 3, H0648: 3, H0539: 3, H0436: 3, L0750: 3, H0624: 2, H0171: 2, H0556: 2, H0657: 2, H0656: 2, S0354: 2, S0358: 2, S0376:	11		65-81, 192-208, 229-245
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738	HUCNM83	869060	748	257 - 610	2153	Thr-29 to Thr-69.	1, L0581: 1, L0595: 1, L0601: 1, H0667: 1, S0192: 1, H0542: 1 and S0424: 1. AR039: 86, AR052: 69, AR096: 65, AR053: 61, AR089: 55, AR060: 38, AR104: 36, AR033: 35, AR055: 18, AR061: 11 H0486: 3, H0641: 3, L0766: 3, L0748: 3, L0731: 3, L0757: 3, T0040: 2, L0770: 2, L0794: 2, L0805: 2, H0519: 2, H0521: 2, H0638: 1, S0420: 1, L0021: 1, H0581: 1, L0471: 1, H0090: 1, H0412: 1, L0761: 1, L0764: 1, L0767: 1, L0803: 1, L0806: 1, L0776: 1, H0659: 1, H0522: 1, L0747: 1, L0779: 1, L0777: 1, L0780: 1, L0759: 1 and H0543: 1.			96-114, 10-26, 76- 92
739	HUCNW47	869091	749	88 - 474	2154	Met-1 to Phe-8.	AR039: 7, AR096: 5, AR053: 5, AR089: 5, AR052: 5, AR033: 5, AR104: 4, AR055: 4, AR060: 3, AR061: 2 L0754: 6, S0420: 5, L0758: 5, H0617: 3, H0521: 1.			104-124, 42-60, 70- 88

740	HEMGJ42	869128	750	213 - 662	2155	Trp-8 to Ser-16.	3, L0741: 3, L0742: 3, L0743: 3, L0744: 3, H0242: 2, L0662: 2, L0775: 2, S0126: 2, L0748: 2, L0740: 2, L0751: 2, L0592: 2, S0040: 1, H0294: 1, H0657: 1, S0212: 1, H0662: 1, S0418: 1, S0132: 1, H0442: 1, H0497: 1, H0052: 1, H0545: 1, H0041: 1, H0292: 1, T0023: 1, H0124: 1, S0036: 1, H0412: 1, H0413: 1, H0059: 1, L0770: 1, L5575: 1, L0650: 1, L0651: 1, L0554: 1, L0805: 1, L0776: 1, L0661: 1, L0809: 1, L0792: 1, L0664: 1, L0665: 1, H0520: 1, H0690: 1, H0682: 1, H0672: 1, H0651: 1, H0436: 1, L0611: 1, L0439: 1, L0747: 1, L0750: 1, L0756: 1, L0755: 1, S0436: 1, L0581: 1, S0196: 1, H0506: 1 and H0352: 1. AR039: 19, AR055: 19, AR033: 15, AR104: 14, AR053: 14, AR089: 12, AR052: 9, AR096: 9, AR060: 8, AR061: 8				85-101
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741	HUSYN11	869192	751	505 - 1443	2156	Met-1 to Glu-6, Gly-15 to Ser-28, Arg-33 to Glu-49, Asn-56 to Tyr-65, Leu-105 to Phe-120, Leu-130 to Ser-142.	S0046: 2, S0360: 1, H0123: 1, H0059: 1, L0662: 1, H0658: 1 and L0589: 1. AR039: 19, AR033: 15, AR052: 12, AR061: 11, AR053: 11, AR089: 11, AR055: 10, AR096: 9, AR060: 7, AR104: 7 H0413: 1				67-99	
742	HTADJ34	869206	752	141 - 620	2157	Ser-5 to Ser-10, Ala-19 to Leu-24, Val-31 to Leu-37, Arg-76 to Lys-81, Leu-84 to Glu-92.	AR052: 53, AR033: 23, AR053: 15, AR096: 7, AR089: 6, AR060: 6, AR061: 4, AR055: 4, AR104: 2, AR039: 1 H0292: 2, H0059: 2, H0149: 1, H0294: 1, S0282: 1, H0484: 1, H0483: 1, H0661: 1, S0418: 1, H0619: 1, H0550: 1, H0069: 1, H0051: 1, T0010: 1, H0266: 1, S0364: 1, H0063: 1, H0560: 1, H0646: 1, H0538: 1, H0520: 1, H0547: 1, H0593: 1, S0126: 1, S0380: 1, S0390: 1, S3014: 1, L0750: 1 and H0543: 1.	2p12	147200, 178640, 216900		54-76	
743	HTXPR30	869227	753	196 - 879	2158		AR055: 10, AR052: 7, AR060: 5, AR061: 5, AR053: 4, AR089: 4,				102-128, 72-94, 160-183,	

[illegible]



744	HAHDP69	869268	754	6 - 2453	2159	1, H0441: 1, H0431: 1, H0257: 1, H0559: 1, T0039: 1, H0635: 1, H0427: 1, S0280: 1, L0022: 1, H0036: 1, S0010: 1, S0182: 1, H0581: 1, H0596: 1, H0544: 1, H0150: 1, H0123: 1, H0350: 1, S0388: 1, S0051: 1, H0271: 1, H0288: 1, H0674: 1, L0456: 1, H0316: 1, H0040: 1, T0041: 1, S0438: 1, H0509: 1, S0208: 1, S0002: 1, L0763: 1, L0637: 1, L0767: 1, L0803: 1, L0774: 1, L0775: 1, L0376: 1, L0806: 1, L0790: 1, L0792: 1, L0666: 1, L0663: 1, H0690: 1, H0435: 1, H0659: 1, H0670: 1, S0328: 1, H0522: 1, H0134: 1, H0555: 1, S0028: 1, L0740: 1, L0754: 1, L0749: 1, L0779: 1, L0759: 1, L0591: 1, L0366: 1, S0194: 1, H0542: 1, H0543: 1, H0423: 1, H0506: 1 and H0352: 1. AR052: 7, AR053: 6, AR089: 5, AR055: 4, AR033: 4, AR096: 4,	185-206, 48-66, 374-390,
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745	HTXBF16	869270	755	119 - 586	2160	Arg-17 to Val-23.	1, L0759: 1, S0260: 1, H0445: 1, L0596: 1, L0592: 1, L0485: 1, L0593: 1, L0601: 1, S0011: 1, H0543: 1 and H0423: 1. AR033: 9, AR089: 3, AR052: 2, AR060: 2, AR055: 2, AR096: 1, AR053: 1, AR061: 1, AR104: 0 H0556: 6, H0424: 3, H0265: 1, H0306: 1, H0402: 1, L0794: 1 and L0366: 1. AR033: 58, AR052: 43, AR053: 34, AR055: 34, AR089: 24, AR061: 18, AR060: 16, AR096: 12, AR104: 8, AR039: 3				29-46, 115-134, 78-94, 51- 67
746	HTXLG13	869344	756	523 - 1020	2161						51-67, 71- 87
747	HEOMD27	869349	757	722 - 1102	2162	Arg-13 to Glu-22, Ser-34 to Phe-44, Ser-46 to Thr-52.	AR052: 9, AR039: 8, AR053: 8, AR096: 6, AR033: 6, AR089: 5, AR055: 4, AR104: 4, AR060: 3, AR061: 2 H0457: 6, H0486: 5, L0439: 5, L0794: 4, L0803: 4, L0742: 4, L0754: 4, L0777: 3, L0599: 3, H0156: 2, H0599: 2, H0014: 2,				72-89, 52- 68

748	HTXHA69	869387	758	46 - 408	2163	Asp-35 to Gly-40, Arg-64 to Val-69.	L0771: 2, L0809: 2, H0478: 2, L0743: 2, L0748: 2, L0749: 2, L0757: 2, L0758: 2, L0595: 2, H0556: 1, H0656: 1, S0418: 1, S0444: 1, L0717: 1, S0222: 1, H0632: 1, T0040: 1, H0052: 1, H0544: 1, L0041: 1, H0373: 1, H0039: 1, H0424: 1, H0405: 1, H0031: 1, H0644: 1, L0055: 1, H0038: 1, H0634: 1, H0551: 1, H0509: 1, S0422: 1, L0761: 1, L0372: 1, L0768: 1, L0766: 1, L0388: 1, L0774: 1, L0775: 1, L0805: 1, L0653: 1, L0776: 1, L0655: 1, L0659: 1, L0526: 1, L0788: 1, L0789: 1, L0666: 1, H0547: 1, H0519: 1, H0672: 1, S0152: 1, L0731: 1, S0031: 1, H0445: 1, L0591: 1, S0242: 1, S0194: 1, S0196: 1 and H0352: 1. AR104: 20, AR033: 18, AR055: 15, AR052: 11, AR060: 9, AR053: 8, AR039: 8, AR096: 8, AR089: 7, AR061: 6 L0142: 2, L0770: 2,					43-60
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749	HFTCV95	869639	759	1877 - 759	2164	Arg-11 to Arg-18.	<p>L0438: 2, L0439: 2, L0752: 2, H0265: 1, S0222: 1, H0013: 1, H0572: 1, H0083: 1, L0455: 1, L0763: 1, L0767: 1, L0748: 1, L0755: 1 and L0592: 1.</p> <p>AR052: 19, AR053: 18, AR089: 16, AR096: 13, AR055: 13, AR060: 12, AR033: 12, AR104: 8, AR039: 7, AR061: 7, H0253: 2, H0520: 2, S0126: 2, L0759: 2, H0556: 1, H0657: 1, S0116: 1, H0450: 1, S0046: 1, H0492: 1, S0049: 1, H0123: 1, H0050: 1, S0036: 1, H0494: 1, H0435: 1, H0670: 1, H0539: 1 and L0731: 1.</p>				198-214, 285-301	
750	HTEHC92	869786	760	52 - 456	2165	<p>Met-1 to Lys-8, Arg-20 to Leu-29, Lys-55 to Leu-63, Ser-77 to Gly-83, Pro-126 to Phe-135.</p>	<p>AR055: 7, AR060: 4, AR039: 4, AR052: 4, AR033: 4, AR089: 4, AR104: 4, AR061: 3, AR053: 3, AR096: 2, H0253: 4, H0038: 4, L0794: 4, L0748: 4, L0754: 4, H0677: 4, H0618: 3, H0616: 3, L0806: 3, L0758: 3, H0013: 2, S0150: 2,</p>				100-118, 62-78	

751	HTFOL05	869816	761	2003 - 1422	2166	Glu-7 to Phe-12, Pro-49 to Phe-56, Gly-65 to Val-71.	L0665: 2, L0439: 2, H0661: 1, S0418: 1, S0410: 1, S0007: 1, S6026: 1, S0300: 1, L0717: 1, H0050: 1, H0266: 1, H0622: 1, L0769: 1, L0637: 1, L0372: 1, L0805: 1, L0776: 1, L0790: 1, S0328: 1, S0206: 1, L0589: 1, H0665: 1 and H0422: 1. AR039: 1, AR104: 1, AR096: 0, AR061: 0, AR053: 0, AR055: 0, AR089: 0, AR060: 0, AR033: 0 L0591: 10, H0622: 5, S0422: 3, L0803: 3, L0438: 3, L0750: 3, S0134: 2, H0663: 2, H0599: 2, H0050: 2, H0687: 2, L0764: 2, L0662: 2, L0766: 2, L0748: 2, L0779: 2, L0777: 2, L0599: 2, S0196: 2, H0265: 1, H0556: 1, H0662: 1, L0481: 1, S0356: 1, H0580: 1, S0046: 1, S0300: 1, S0222: 1, H0431: 1, H0574: 1, S0474: 1, H0052: 1, H0309: 1, H0083: 1, H0428: 1, H0031: 1, H0644: 1,					166-191
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752	HTPDV70	869874	762	67 - 501	2167	His-2 to Gln-16, Gly-23 to Ser-28, Met-40 to Asn-45, Gln-76 to Leu-91.	H0628: 1, L0055: 1, H0038: 1, H0616: 1, H0560: 1, H0529: 1, L0372: 1, L0768: 1, L0794: 1, L0519: 1, L0666: 1, L0665: 1, S0216: 1, H0144: 1, S0330: 1, H0518: 1, S0332: 1, S0146: 1, H0555: 1, S0027: 1, L0439: 1, L0754: 1, L0756: 1, L0731: 1, L0595: 1, S0194: 1, H0543: 1, H0423: 1 and S0424: 1.				58-74, 114-130
753	HLYGH73	869917	763	808 - 2	2168	Pro-18 to Leu-46.	AR053: 16, AR096: 14, AR052: 14, AR055: 12, AR089: 9, AR060: 8, AR033: 6, AR061: 6, AR104: 4, AR039: 4 H0591: 2, H0521: 2, S0046: 1, S0010: 1, H0039: 1, H0641: 1, H0519: 1 and H0543: 1. AR033: 6, AR089: 4, AR060: 4, AR061: 3, AR039: 3, AR053: 3, AR096: 2, AR052: 2, AR055: 2, AR104: 1 H0677: 8, L0617: 4, H0650: 3, H0457: 3, T0041: 3, H0657: 2, H0486: 2,				237-257, 130-146, 71-87, 48- 64

754	HCE3E13	869962	764	299 - 688	2169				H0581: 2, H0264: 2, H0652: 2, S0144: 2, S0002: 2, H0529: 2, L0662: 2, S0436: 2, H0713: 1, S0114: 1, H0254: 1, S0354: 1, S0360: 1, H0580: 1, H0485: 1, H0046: 1, H0594: 1, S0628: 1, H0271: 1, H0416: 1, H0388: 1, H0591: 1, S0440: 1, S0344: 1, S0426: 1, L0761: 1, L0766: 1, L0804: 1, L0655: 1, L0666: 1, L0664: 1, H0698: 1, H0435: 1, S0328: 1, H0539: 1, H0445: 1, S0434: 1, H0542: 1 and H0423: 1.				101-117
755	HRAAH37	869969	765	40 - 489	2170	Met-1 to Asn-8, Ala-16 to Glu-45, Ser-57 to Val-62, Pro-101 to Cys-113.			AR052: 18, AR053: 18, AR055: 14, AR096: 14, AR089: 11, AR104: 9, AR060: 9, AR033: 8, AR039: 7, AR061: 7, H0318: 1, H0052: 1, H0264: 1, S0386: 1 and H0521: 1.				76-93, 126-142



756	HTOFB26	869981	766	77 - 649	2171	Ala-7 to Lys-12, Gln-49 to Asn-56.	H0650: 1, H0318: 1, H0264: 1, H0555: 1 and H0677: 1. AR096: 7, AR060: 6, AR055: 5, AR089: 5, AR039: 5, AR033: 5, AR053: 4, AR052: 4, AR104: 3, AR061: 3 H0264: 1 and L0584: 1.			167-183, 141-157, 13-29
757	HMELR15	870005	767	262 - 2034	2172	Ser-14 to Arg-19, His-76 to Ser-82, Arg-229 to Leu-235, Asp-283 to Gly-289, Leu-301 to Ser-306, Ala-423 to Gln-429, Gly-444 to Thr-459, Ala-490 to Asp-499, Glu-502 to Gly-514, Ser-527 to Tyr-533, Glu-535 to Leu-545, Leu-578 to Arg-584.	AR055: 6, AR052: 4, AR053: 4, AR060: 4, AR033: 3, AR061: 3, AR089: 3, AR104: 3, AR039: 2, AR096: 2 H0046: 16, L0731: 5, L0758: 5, H0013: 4, S0436: 4, L0596: 4, L0766: 3, H0519: 3, H0521: 3, L0759: 3, H0543: 3, S0116: 2, S0222: 2, S0010: 2, H0266: 2, H0616: 2, H0412: 2, H0623: 2, L0655: 2, L0783: 2, H0547: 2, L0743: 2, L0747: 2, L0591: 2, L0362: 2, T0002: 1, S0114: 1, S0218: 1, H0341: 1, S0212: 1, H0663: 1, L0481: 1, S0354: 1, S0410: 1, H0722: 1, S0046: 1, S0132: 1,			211-227, 126-142, 347-363, 462-478, 29-45, 105-121, 237-253, 307-323, 147-163

758	HTDAF92	870067	768	256 - 1011	2173	Leu-23 to Val-28, Gly-94 to Asn-105, Asp-132 to Arg-140, Ser-154 to Asn-164.	S0476: 1, H0393: 1, L0717: 1, H0369: 1, H0392: 1, H0587: 1, T0039: 1, T0040: 1, H0156: 1, H0318: 1, H0230: 1, H0544: 1, H0545: 1, L0041: 1, H0014: 1, H0267: 1, H0252: 1, H0688: 1, H0644: 1, H0606: 1, H0135: 1, H0591: 1, H0038: 1, H0087: 1, H0488: 1, H0413: 1, S0038: 1, T0041: 1, H0561: 1, S0440: 1, H0695: 1, L0369: 1, L0763: 1, L0638: 1, L0764: 1, L0662: 1, L0651: 1, L0806: 1, L0657: 1, L0518: 1, L0809: 1, H0144: 1, H0520: 1, S0126: 1, H0435: 1, H0660: 1, S0013: 1, H0627: 1, S3012: 1, S0027: 1, L0741: 1, L0744: 1, L0748: 1, L0786: 1, L0779: 1, S0031: 1, S0260: 1, L0599: 1, L0608: 1, L0595: 1, S0011: 1, S0242: 1, H0423: 1 and H0422: 1.				178-194
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						His-196 to Pro-203, Arg-227 to Ala-232.			AR052: 1, AR096: 1 L0439: 3, S0222: 2, H0543: 2, S0360: 1, H0622: 1, H0063: 1, H0477: 1, T0042: 1, L0369: 1, L0771: 1, L0662: 1, L0659: 1, L0809: 1 and L0786: 1.			
759	HTLIV78	870098	769	109 - 603	2174	Pro-9 to Asp-14, Arg-101 to Gln-113.			AR039: 25, AR104: 13, AR055: 12, AR096: 12, AR053: 12, AR033: 11, AR089: 9, AR060: 8, AR052: 8, AR061: 7 L0758: 10, L0794: 3, H0618: 2, H0038: 2, H0253: 1, L0768: 1 and L0789: 1.			67-86, 131-149, 49-66
760	HTLEI29	870142	770	106 - 1287	2175	Thr-92 to Phe-104, Pro-121 to Lys-127, Arg-178 to Gly-184, Ser-219 to Asp-224, Pro-237 to His-242, Ser-348 to Gly-353.			AR055: 17, AR039: 11, AR033: 10, AR053: 10, AR061: 8, AR089: 8, AR052: 7, AR060: 7, AR096: 6, AR104: 5 H0253: 15, H0618: 12, L0758: 11, L0779: 10, H0150: 1, L0768: 1 and L0790: 1.			269-288, 364-380
761	HTLGX79	870181	771	121 - 543	2176	Arg-3 to Ser-9, Gly-15 to Arg-40.			AR055: 7, AR033: 5, AR039: 5, AR096: 5, AR052: 5, AR053: 5, AR104: 4, AR060: 4, AR061: 4, AR089: 3			57-74

762	HHFOV07	870237	772	28 - 975	2177	Pro-116 to Ser-127, Glu-130 to Leu-135.	L0803: 15, L0794: 8, L0731: 7, L0758: 7, H0253: 6, H0618: 4, L0804: 4, L0809: 4, L0439: 4, L0754: 4, S0442: 3, L0752: 3, H0556: 2, S0045: 2, T0010: 2, H0622: 2, H0553: 2, H0135: 2, L0770: 2, L0662: 2, L0775: 2, H0144: 2, L0741: 2, L0747: 2, H0171: 1, H0713: 1, S0218: 1, H0661: 1, S0046: 1, H0550: 1, S0222: 1, H0586: 1, H0333: 1, H0486: 1, S0010: 1, H0421: 1, H0194: 1, H0564: 1, H0687: 1, H0039: 1, H0616: 1, S0038: 1, H0100: 1, H0633: 1, L0763: 1, L0800: 1, L0642: 1, L0764: 1, L0768: 1, L0776: 1, L0656: 1, L0659: 1, L0382: 1, L0666: 1, H0593: 1, L0740: 1, L0755: 1, L0757: 1, S0434: 1, S0436: 1 and H0665: 1.	AR055: 6, AR060: 5, AR052: 4, AR053: 3, AR089: 2, AR033: 2, AR061: 2, AR096: 1, AR104: 1, AR039: 0			162-178, 95-111, 16-32
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763	HTLDO59	870276	773	40 - 459	2178	Pro-10 to Gly-17, Gly-25 to Thr-37, Asp-39 to Gly-44, Arg-66 to His-71.	H0645: 1 and H0253: 1. AR039: 64, AR053: 43, AR052: 34, AR104: 30, AR033: 29, AR089: 29, AR096: 29, AR055: 28, AR060: 19, AR061: 16 H0618: 5, L0758: 5, S0049: 4, H0253: 3, H0052: 3, H0617: 3, H0494: 3, H0144: 3, L0747: 3, H0341: 2, H0550: 2, H0424: 2, L0794: 2, L0766: 2, L0439: 2, L0751: 2, L0745: 2, L0752: 2, S0436: 2, S0452: 2, H0556: 1, S0114: 1, H0483: 1, S0358: 1, S0360: 1, H0580: 1, S0132: 1, H0261: 1, H0559: 1, H0486: 1, S0280: 1, H0575: 1, L0024: 1, H0546: 1, H0150: 1, H0620: 1, H0024: 1, T0010: 1, S6028: 1, H0179: 1, H0417: 1, H0038: 1, T0067: 1, H0059: 1, T0042: 1, S0144: 1, L0637: 1, L0761: 1, L0768: 1, L0807: 1, L0788: 1, L0791: 1, H0520: 1, H0593: 1, H0684: 1, S0380: 1, H0696: 1, H0555: 1, H0436: 1, L0748:				78-98
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764	HE8TM62	870447	774	8 - 346	2179				1, L0740: 1, L0754: 1, L0779: 1, L0755: 1, L0581: 1, L0698: 1 and S0424: 1. AR061: 4, AR055: 4, AR033: 3, AR052: 3, AR060: 3, AR053: 3, AR096: 3, AR089: 2, AR104: 1, AR039: 0 H0013: 1, H0014: 1, H0087: 1, L0742: 1, L0750: 1 and S0424: 1.				63-85, 26- 44
765	HJBCS70	870457	775	734 - 186	2180	Met-1 to Cys-7, Gly-21 to Val-28, Lys-46 to Ala-56.			AR104: 124, AR061: 112, AR096: 76, AR055: 74, AR053: 64, AR033: 59, AR089: 59, AR060: 57, AR052: 52, AR039: 36 L0731: 3, H0086: 2, H0717: 1, S0212: 1, H0255: 1, S0045: 1, H0493: 1, H0559: 1, H0052: 1, H0620: 1, S6028: 1, T0042: 1, H0478: 1, L0749: 1, L0758: 1 and S0436: 1.				121-143
766	HTFMP59	870490	776	93 - 641	2181				AR060: 1, AR053: 1, AR052: 1, AR033: 1, AR055: 1, AR061: 1, AR089: 1, AR104: 0, AR096: 0, AR039: 0 H0402: 1, S0418: 1,				145-164, 91-108, 126-142

767	HTEOY86	870519	777	366 - 722	2182	His-73 to His-78.		T0003: 1, H0418: 1, L0055: 1, L0378: 1, L0519: 1, L0744: 1, L0751: 1, L0749: 1, L0756: 1, L0752: 1, L0731: 1, L0758: 1, L0587: 1, L0601: 1 and S0424: 1.				33-49, 79-95, 51-67
768	HTEKC55	870560	778	175 - 1164	2183	Ser-4 to Ser-14, Pro-73 to Gly-85, Lys-107 to Gly-115, Gly-201 to Trp-210, Lys-247 to Cys-258, Pro-260 to Cys-265, Thr-281 to Pro-290, Glu-303 to Phe-309.		AR055: 11, AR052: 9, AR053: 8, AR060: 7, AR033: 6, AR061: 5, AR089: 5, AR096: 4, AR039: 3, AR104: 2 H0616: 5, H0619: 1, H0618: 1, H0038: 1, L0806: 1, L0666: 1, L0664: 1 and L0750: 1.				140-159, 167-186, 214-230
769	HTEPK69	870574	779	281 - 2092	2184	Met-1 to Ala-11, Pro-21 to Gln-31, Thr-39 to Glu-55, Leu-59 to Pro-64, Pro-73 to Leu-88, Glu-106 to Glu-116,		AR055: 7, AR060: 6, AR052: 5, AR089: 5, AR033: 4, AR053: 4, AR061: 4, AR096: 4, AR039: 3, AR104: 2 L0794: 6, L0803: 5,				585-601, 357-373, 254-270, 337-353

Pro-149 to Ile-154, Arg-171 to Ile-177, Phe-191 to Pro-201, Arg-291 to Pro-296, His-313 to Asp-318, Pro-441 to Asn-462, Glu-512 to Asp-537, Thr-554 to Glu-568.	L0752: 5, L0758: 5, L0766: 4, H0038: 3, H0616: 3, S0002: 3, L0774: 3, S0126: 3, L0600: 3, H0657: 2, S0418: 2, H0442: 2, H0581: 2, L0483: 2, H0031: 2, H0553: 2, S0344: 2, L0761: 2, L0804: 2, L0655: 2, L0663: 2, L0438: 2, H0682: 2, L0602: 2, L0748: 2, L0439: 2, L0754: 2, L0749: 2, L0777: 2, L0587: 2, S0026: 2, H0265: 1, S0040: 1, T0049: 1, H0583: 1, H0662: 1, S0420: 1, S0358: 1, S0045: 1, H0550: 1, H0431: 1, H0453: 1, H0370: 1, H0497: 1, H0574: 1, H0485: 1, T0060: 1, H0013: 1, T0082: 1, H0253: 1, S0346: 1, H0318: 1, H0196: 1, H0052: 1, L0118: 1, H0012: 1, H0017: 1, T0006: 1, H0644: 1, H0400: 1, H0591: 1, H0063: 1, T0067: 1, H0264: 1, H0488: 1, H0623: 1, H0494: 1, S0016: 1, H0561: 1, S0142: 1, L0638: 1, L0643: 1, L0662: 1, L0499: 1, L0651: 1.				
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770	HTENV57	870594	780	105 - 497	2185	Ser-2 to Arg-8, Arg-16 to Ser-22, Glu-33 to Asn-40, Lys-70 to Gln-80, Tyr-88 to Lys-94, Lys-110 to Gln-122.	L0378: 1, L0806: 1, L0607: 1, L0659: 1, L0783: 1, L0664: 1, H0547: 1, S3012: 1, L0747: 1, H0445: 1, L0592: 1, L0604: 1, L0595: 1, L0601: 1, H0543: 1, H0423: 1 and H0422: 1.				44-64	
771	HTEJF45	870668	781	135 - 500	2186	Ser-6 to Pro-13, His-15 to Thr-21, Ser-55 to Pro-66, Asn-94 to Ser-101.	AR055: 10, AR061: 5, AR053: 5, AR060: 5, AR089: 4, AR033: 4, AR052: 4, AR096: 3, AR039: 3, AR104: 2 H0616: 5 and H0038: 1.				101-117	
772	HTEGF16	870701	782	299 - 817	2187	Gln-39 to Asp-51, Gln-102 to Leu-107, Pro-118 to Arg-131.	AR039: 39, AR052: 26, AR033: 25, AR053: 22, AR055: 22, AR096: 19, AR104: 19, AR060: 18, AR089: 18, AR061: 13 L0803: 8, H0318: 4, L0800: 4, L0764: 4, L0766: 4, L0372: 3, L0809: 3,				51-82, 150-166	

773	HLTGU35	870713	783	200 - 520	2188	Met-1 to Tyr-11, Lys-13 to Phe-18, Cys-22 to Gly-27.	L0750: 3, L0777: 3, H0575: 2, S0010: 2, H0038: 2, L0662: 2, L0794: 2, L0774: 2, L0805: 2, L0659: 2, S0328: 2, L0758: 2, L0591: 2, H0650: 1, H0484: 1, H0369: 1, H0438: 1, H0618: 1, H0390: 1, H0266: 1, H0644: 1, L0770: 1, L0769: 1, L0772: 1, L0643: 1, L0773: 1, L0648: 1, L0375: 1, L0806: 1, L0789: 1, L0663: 1, L0664: 1, L0438: 1, S0126: 1, S0330: 1, H0696: 1, L0748: 1, L0439: 1, L0740: 1, L0754: 1, L0749: 1 and L0779: 1.	L0750: 3, L0777: 3, H0575: 2, S0010: 2, H0038: 2, L0662: 2, L0794: 2, L0774: 2, L0805: 2, L0659: 2, S0328: 2, L0758: 2, L0591: 2, H0650: 1, H0484: 1, H0369: 1, H0438: 1, H0618: 1, H0390: 1, H0266: 1, H0644: 1, L0770: 1, L0769: 1, L0772: 1, L0643: 1, L0773: 1, L0648: 1, L0375: 1, L0806: 1, L0789: 1, L0663: 1, L0664: 1, L0438: 1, S0126: 1, S0330: 1, H0696: 1, L0748: 1, L0439: 1, L0740: 1, L0754: 1, L0749: 1 and L0779: 1.	59-75, 29- 45, 82-98
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774	HTEDK07	870714	784	21 - 515	2189	Thr-94 to Trp-103, Arg-121 to Trp-140.	AR055: 16, AR039: 14, AR033: 11, AR060: 9, AR104: 9, AR053: 8, AR052: 8, AR096: 7, AR089: 7, AR061: 6 L0754: 3, L0777: 3, L0439: 2, S0116: 1, H0341: 1, H0661: 1, H0038: 1, H0412: 1, L0761: 1, L0667: 1, L0764: 1, L0788: 1, H0435: 1, L0749: 1, L0779: 1 and L0758: 1.			57-75
775	HADGO63	870818	785	1996 - 1418	2190	Ser-33 to Arg-38, Glu-134 to Ser-140, Val-177 to Asn-182.	AR053: 4, AR096: 3, AR033: 3, AR104: 3, AR052: 3, AR039: 3, AR055: 3, AR089: 2, AR061: 1, AR060: 1 L0766: 8, L0438: 4, H0547: 4, L0756: 4, L0748: 3, L0777: 3, H0051: 2, L0754: 2, L0749: 2, L0759: 2, S0040: 1, S0342: 1, T0049: 1, H0638: 1, S0376: 1, S0045: 1, H0619: 1, L0717: 1, H0411: 1, S0220: 1, H0587: 1, H0574: 1, H0427: 1, H0599: 1, S0010: 1, S0346: 1, S0474: 1, H0544: 1, L0471: 1, H0039: 1, H0538: 1, L0770: 1,			70-89, 101-117, 6-22, 52- 68

									L0761: 1, L0771: 1, L0662: 1, L0375: 1, L0805: 1, L0793: 1, L0666: 1, S0053: 1, L0352: 1, S0126: 1, H0435: 1, H0658: 1, H0539: 1, S0152: 1, L0740: 1, L0750: 1, L0755: 1, S0031: 1, L0591: 1 and H0668: 1.				
776	HTAHY24	870826	786	452 - 760	2191	Met-1 to Thr-9, Pro-39 to Ala-48, Pro-51 to Ser-57, Thr-80 to Tyr-92.			AR055: 10, AR060: 6, AR033: 5, AR096: 4, AR061: 4, AR089: 4, AR053: 4, AR052: 4, AR039: 2, AR104: 2 H0635: 2, H0580: 1, H0634: 1, L0731: 1 and L0596: 1.				55-79
777	HDPDO84	870936	787	55 - 567	2192	Ser-35 to Thr-51, Gln-75 to Asp-81, Gly-123 to Asn-135.			AR033: 8, AR089: 6, AR039: 5, AR052: 4, AR053: 4, AR060: 4, AR055: 4, AR096: 3, AR061: 3, AR104: 2 L0755: 12, L0759: 6, L0745: 5, L0794: 4, S0418: 3, L0666: 3, H0520: 3, S0152: 3, L0748: 3, L0779: 3, S0212: 2, H0318: 2, H0031: 2, L0142: 2, H0538: 2, L0766: 2, L0659: 2, L0665: 2, H0519: 2, S0328:				145-171

778	HNTAN11	870937	788	298 - 858	2193		2, L0754: 2, L0747: 2, L0777: 2, L0600: 2, L0470: 1, S0116: 1, S0045: 1, H0587: 1, H0333: 1, H0486: 1, H0581: 1, H0597: 1, L0157: 1, S6028: 1, H0266: 1, S0250: 1, S0022: 1, S0214: 1, T0023: 1, H0383: 1, H0674: 1, H0090: 1, H0038: 1, H0413: 1, H0494: 1, S0438: 1, H0509: 1, L0638: 1, L0637: 1, L0646: 1, L0800: 1, L0363: 1, L0768: 1, L0804: 1, L0774: 1, L0382: 1, L0789: 1, L0792: 1, L0664: 1, H0144: 1, H0547: 1, S0126: 1, S0380: 1, H0518: 1, H0521: 1, S0013: 1, H0704: 1, H0478: 1, S0032: 1, L0749: 1, L0756: 1, L0752: 1, L0731: 1, L0584: 1, L0588: 1, H0542: 1, H0543: 1, S0462: 1 and : 1. AR033: 6, AR052: 6, AR096: 4, AR089: 4, AR053: 3, AR039: 3, AR060: 3, AR104: 2, AR055: 2, AR061: 1 L0755: 12, L0759: 6,					94-118, 119-139
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779	HTTB31	870946	789	463 - 783	2194	Pro-17 to Arg-25, Ser-48 to Arg-67.	S0462: 1 and : 1. AR060: 75, AR104: 74, AR061: 72, AR033: 68, AR039: 57, AR055: 53, AR089: 41, AR052: 27, AR096: 20, AR053: 19 L0774: 6, H0046: 5, H0012: 3, H0333: 2, L0769: 2, H0662: 1, H0550: 1, H0370: 1, H0036: 1, T0003: 1, H0040: 1, L0768: 1, L0803: 1, L0659: 1, L0792: 1, L0666: 1 and H0008: 1.				65-95
780	HAMGO24	870957	790	136 - 549	2195	Ser-12 to Leu-17, Lys-32 to Val-38.	AR052: 5, AR053: 4, AR096: 3, AR039: 3, AR089: 3, AR033: 2, AR060: 2, AR104: 2, AR061: 1, AR055: 1 L0766: 9, L0742: 6, L0803: 5, S0358: 3, H0521: 3, L0777: 3, L0758: 3, H0413: 2, S0466: 2, L0775: 2, L0666: 2, L0779: 2, L0752: 2, S0444: 1, S0360: 1, H0393: 1, H0587: 1, H0486: 1, H0013: 1, H0069: 1, H0575: 1, H0052: 1, H0545: 1, H0510: 1, H0687: 1, S0003: 1, H0553: 1,				51-67, 72- 88

781	HODFK55	870975	791	523 - 915	2196	Cys-12 to Tyr-23.	H0551: 1, H0560: 1, H0509: 1, H0646: 1, S0422: 1, L0598: 1, L0762: 1, L0641: 1, L0794: 1, L0804: 1, L0651: 1, L0659: 1, L0664: 1, H0519: 1, H0522: 1, L0755: 1, S0031: 1, H0653: 1, H0542: 1 and S0412: 1.	5p15.2	123000, 602568			97-113, 77-93
782	HBJMW49	871019	792	107 - 457	2197	Glu-34 to Lys-48.	AR096: 14, AR089: 11, AR055: 9, AR060: 9, AR033: 9, AR053: 7, AR052: 7, AR061: 5, AR104: 4, AR039: 4 H0580: 2, H0615: 2, H0619: 1, H0645: 1, H0549: 1, H0392: 1, H0581: 1, T0042: 1, L0766: 1, H0522: 1 and H0343: 1.					2-28, 96- 112
783	HSXDF62	871038	793	82 - 420	2198	Asp-37 to His-51.	AR089: 1, AR104: 1, AR033: 1, AR061: 0, AR055: 0, AR052: 0, AR053: 0, AR060: 0, AR096: 0					62-82, 97- 113, 3-19



784	HSVCE22	871088	794	78 - 440	2199				H0586: 1 and S0036: 1. AR052: 14, AR089: 10, AR053: 10, AR096: 9, AR055: 9, AR033: 7, AR060: 7, AR039: 6, AR104: 4, AR061: 4 H0309: 1, L0768: 1, L0527: 1 and L0749: 1.			43-64, 98-114
785	HFKLC74	871186	795	2045 - 687	2200	Gly-15 to His-26, Pro-28 to Asn-35, Pro-81 to Asn-98, Pro-118 to Arg-125.			AR060: 1, AR053: 1, AR033: 1, AR061: 1, AR096: 1, AR089: 1, AR104: 1, AR039: 0, AR055: 0, AR052: 0 L0794: 5, L0743: 4, H0265: 3, S0418: 3, H0620: 3, H0040: 3, H0561: 3, L0662: 3, L0803: 3, L0809: 3, L0759: 3, H0592: 2, H0559: 2, H0253: 2, H0318: 2, H0086: 2, H0494: 2, L0771: 2, L0766: 2, L0659: 2, L0352: 2, H0659: 2, H0670: 2, H0555: 2, S3012: 2, S0027: 2, L0748: 2, L0750: 2, H0542: 2, H0556: 1, H0650: 1, H0341: 1, H0484: 1, H0402: 1, S0354: 1, S0360: 1, H0580: 1, H0586: 1, H0497: 1, H0333:			97-116, 128-145, 162-178, 236-252

786	HTLEV30	871212	796	189 - 506	2201		1, H0331: 1, H0257: 1, T0040: 1, H0427: 1, H0599: 1, H0052: 1, T0115: 1, H0545: 1, H0050: 1, H0083: 1, S0316: 1, H0284: 1, H0424: 1, H0181: 1, L0055: 1, S0364: 1, S0366: 1, H0551: 1, H0412: 1, H0413: 1, T0042: 1, H0560: 1, H0509: 1, S0344: 1, H0529: 1, L0640: 1, L0646: 1, L0643: 1, L0764: 1, L0648: 1, L0389: 1, L0655: 1, L0664: 1, L0665: 1, H0144: 1, H0697: 1, H0520: 1, H0593: 1, H0711: 1, H0521: 1, H0696: 1, H0436: 1, H0540: 1, L0744: 1, L0747: 1, L0757: 1, H0445: 1, H0653: 1, H0667: 1 and L0697: 1.				81-106, 57-79
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787	HSRAV54	871264	797	969 - 1280	2202	Met-1 to Lys-9, Ala-11 to Trp-22, Pro-82 to Glu-92.	1, H0286: 1, H0100: 1, H0509: 1, L0373: 1, L0643: 1, L0645: 1, L0657: 1, H0435: 1, H0696: 1, L0749: 1, L0780: 1, L0755: 1, H0543: 1, S0042: 1 and H0677: 1.				49-65	
788	HTLID05	871356	798	157 - 1008	2203		AR096: 32, AR089: 19, AR039: 19, AR052: 17, AR053: 16, AR060: 16, AR055: 14, AR033: 12, AR104: 11, AR061: 5 S0011: 3, H0306: 1, H0402: 1, L0004: 1, H0486: 1, H0050: 1, S0051: 1, H0494: 1 and S0002: 1. AR033: 15, AR055: 7, AR060: 4, AR061: 3, AR089: 3, AR052: 3, AR053: 3, AR104: 2, AR096: 2 S0282: 2, L0769: 2, L0794: 2, L0665: 2, L0438: 2, H0618: 1, S0010: 1, S0049: 1, H0052: 1, H0194: 1, S0051: 1, T0041: 1, L0770: 1, L0639: 1, L0761: 1, L0659: 1, L0809: 1, L0666: 1, L0352: 1, L0612:				44-60, 160-176, 61-77	

789	HDACG50	871387	799	180 - 551	2204		1, L0439: 1, L0779: 1 and L0366: 1. AR052: 5, AR089: 5, AR060: 4, AR053: 4, AR096: 3, AR033: 3, AR104: 2, AR039: 1, AR055: 1, AR061: 1 L0748: 10, L0752: 9, L0731: 8, S0380: 7, L0758: 7, L0747: 6, H0038: 4, L0766: 4, L0438: 4, L0749: 4, S0003: 3, L0638: 3, L0768: 3, L0754: 3, L0770: 2, L0769: 2, L0774: 2, L0659: 2, H0522: 2, L0439: 2, L0740: 2, L0750: 2, L0786: 2, L0757: 2, L0759: 2, L0595: 2, L0362: 2, L0601: 2, S0040: 1, H0656: 1, S0354: 1, S0358: 1, T0008: 1, H0580: 1, S0045: 1, H0612: 1, H0497: 1, L0586: 1, H0013: 1, H0250: 1, H0635: 1, H0004: 1, S0010: 1, L0105: 1, H0546: 1, H0457: 1, H0083: 1, S0022: 1, S0214: 1, L0483: 1, H0031: 1, H0032: 1, H0673: 1, H0090: 1, H0412: 1, L0351: 1, H0494: 1,				87-103
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790	HWAGU6 2	871413	800	19 - 732	2205	Pro-94 to Lys-100, Glu-142 to Gln-147.	<p>H0633: 1, S0144: 1, S0344: 1, S0002: 1, L0369: 1, L0772: 1, L0646: 1, L0764: 1, L0662: 1, L0775: 1, L0653: 1, L0384: 1, L0383: 1, L0664: 1, H0144: 1, H0520: 1, S0126: 1, H0435: 1, S0152: 1, H0521: 1, H0696: 1, H0555: 1, S0028: 1, S0260: 1, S0436: 1, L0589: 1, S0242: 1, S0194: 1, H0423: 1, H0422: 1 and S0424: 1.</p> <p>AR096: 6, AR039: 6, AR052: 6, AR089: 5, AR033: 5, AR053: 4, AR060: 4, AR055: 3, AR061: 3, AR104: 3 S0356: 10, S0422: 3, L0766: 3, L0803: 3, S0330: 3, H0486: 2, L0743: 2, L0731: 2, H0170: 1, L0785: 1, S0116: 1, S0442: 1, S0354: 1, S0358: 1, S0410: 1, S0278: 1, H0642: 1, H0581: 1, H0596: 1, H0355: 1, S0003: 1, L0455: 1, H0090: 1, H0591: 1, S0142: 1, S0344: 1, S0426: 1, L0598: 1, L0794: 1, L0804:</p>				211-238, 68-93, 146-164, 178-197, 1-22, 29- 45
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791	HOEBN65	871416	801	122 - 577	2206	Phe-17 to Ala-26, Arg-44 to Ile-51, Lys-64 to Asp-72, Thr-100 to Leu-110.	1, L0659: 1, L0809: 1, L0789: 1, L0664: 1, H0547: 1, H0660: 1, S0378: 1, L0751: 1, L0754: 1, L0779: 1, L0780: 1, L0758: 1, L0608: 1, S0026: 1 and H0543: 1. AR033: 21, AR055: 20, AR089: 14, AR061: 12, AR060: 11, AR053: 10, AR052: 9, AR039: 8, AR096: 8, AR104: 5 L0731: 11, L0752: 9, L0750: 7, L0748: 6, L0757: 6, L0758: 6, L0743: 5, H0012: 4, L0751: 4, L0755: 4, S0116: 3, L0783: 3, S0126: 3, S0044: 3, L0741: 3, H0445: 3, T0049: 2, H0255: 2, H0305: 2, S0358: 2, S0444: 2, S6026: 2, H0643: 2, H0257: 2, T0048: 2, H0150: 2, L0471: 2, H0620: 2, H0290: 2, H0213: 2, H0617: 2, H0494: 2, L0770: 2, L0769: 2, L0803: 2, L0776: 2, L0518: 2, H0658: 2, S0027: 2, L0747: 2, L0777: 2, L0587: 2, L0588: 2, L0604: 2, H0170:						120-148
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792	HOEEY 60	871485	802	155 - 499	2207	Lys-38 to Ser-45.	1, H0149: 1, H0265: 1, H0140: 1, H0295: 1, H0294: 1, S0430: 1, H0657: 1, H0341: 1, H0484: 1, H0402: 1, H0125: 1, S0420: 1, S0360: 1, S0410: 1, L0467: 1, H0441: 1, H0370: 1, H0330: 1, H0600: 1, H0592: 1, H0586: 1, H0333: 1, H0492: 1, H0486: 1, H0156: 1, H0618: 1, H0253: 1, S0346: 1, H0581: 1, H0196: 1, H0204: 1, H0545: 1, H0123: 1, H0320: 1, H0014: 1, H0399: 1, H0594: 1, H0687: 1, H0252: 1, H0615: 1, T0006: 1, H0604: 1, H0182: 1, H0090: 1, H0616: 1, H0087: 1, H0412: 1, S0150: 1, S0142: 1, L0763: 1, L0761: 1, L0772: 1, L0764: 1, L0794: 1, L0533: 1, L0775: 1, L0653: 1, L0655: 1, L0659: 1, L0530: 1, S0330: 1, H0696: 1, S0406: 1, L0740: 1, L0754: 1, L0753: 1, H0667: 1, S0192: 1 and H0543: 1.				15-37, 83- 99, 53-69
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793	HHECK12	871540	803	2 - 967	2208			Lys-14 to Gly-19, Asp-62 to Ile-67, Asn-87 to Glu-107.	AR104: 9, AR033: 9, AR039: 7, AR060: 7, AR089: 4, AR052: 2, AR055: 2, AR053: 2, AR096: 2, AR061: 1, S0010: 1, S0374: 1, L0366: 1, S0276: 1 and H0542: 1.				30-59, 17-39, 233-249	
794	HTLEM32	871541	804	175 - 675	2209			Ile-35 to Leu-45, Lys-67 to Gly-72, Asp-115 to Ile-120, Asn-140 to Ser-154.	AR039: 20, AR033: 17, AR055: 14, AR104: 14, AR053: 13, AR060: 13, AR089: 12, AR061: 7, AR052: 7, AR096: 7				83-112, 70-92	
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796	HHEOI72	871663	806	237 -	2211			Lys-4 to Arg-9,	AR052: 3, AR089: 3,					9-32, 170-

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797	HAPRN77	871674	807	26 - 379	2212	AR055: 21, AR033: 18, AR060: 14, AR039: 13, AR104: 11, AR052: 11, AR061: 11, AR089: 8, AR053: 6, AR096: 3 L0439: 3, H0351: 2, H0575: 2, L0794: 2, L0803: 2, L0751: 2, S0242: 2, S0358: 1, H0392: 1, H0333: 1, H0390: 1, L0471: 1, H0553: 1, H0264: 1, L0645: 1, L0766: 1, S0028: 1, L0748: 1, L0747: 1, L0749: 1, L0777: 1, L0601: 1, S0194: 1 and S0196: 1.				36-55

798	HLJDL43	871689	808	577 - 972	2213	His-2 to Gly-19, Gly-63 to Gly-70, Pro-89 to Ser-95, Lys-105 to Ser-118.	AR053: 27, AR052: 23, AR096: 23, AR033: 20, AR039: 19, AR104: 18, AR089: 14, AR060: 12, AR055: 11, AR061: 6 L0766: 8, H0521: 4, L0748: 4, L0439: 4, S0360: 3, H0581: 2, L0471: 2, H0135: 2, H0264: 2, L0805: 2, L0776: 2, L0754: 2, L0599: 2, H0423: 2, H0624: 1, H0265: 1, H0556: 1, S0040: 1, H0657: 1, H0662: 1, S0045: 1, S0222: 1, H0592: 1, H0485: 1, H0599: 1, H0575: 1, H0618: 1, S0010: 1, H0545: 1, H0009: 1, H0014: 1, T0010: 1, H0510: 1, H0375: 1, S0022: 1, H0591: 1, H0100: 1, S0142: 1, L0770: 1, L0761: 1, L0794: 1, L0375: 1, S0216: 1, S0374: 1, L0438: 1, H0520: 1, H0539: 1, S0027: 1, L0740: 1, L0751: 1, L0777: 1, L0752: 1, L0757: 1, L0759: 1, L0594: 1, L0366: 1, H0542: 1 and H0543: 1.			39-61, 71- 87
799	HTXOX92	871693	809	131 -	2214	Ser-31 to Trp-37,	AR033: 20, AR052: 14,			159-176,

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800	HLJDU57	871712	810	10 - 435	2215	Glu-79 to Tyr-86.	H0506: 1. AR096: 6, AR089: 4, AR052: 3, AR060: 3, AR053: 2, AR033: 2, AR055: 2, AR061: 1, AR104: 1, AR039: 1 H0375: 1, L0649: 1 and H0522: 1.			1-30, 24-49, 92-113, 118-142, 51-71
801	HHFKL03	871735	811	38 - 718	2216	Ile-11 to Arg-16, Val-18 to Ser-25, Ser-28 to Thr-36, Glu-41 to Ser-46.	AR033: 10, AR089: 8, AR052: 7, AR053: 6, AR060: 6, AR096: 6, AR104: 5, AR055: 4, AR039: 3, AR061: 2			122-145, 66-83, 147-163, 171-187, 190-206, 48-64
802	HNTTB69	871818	812	540 - 839	2217	Pro-71 to Pro-80, Pro-87 to Phe-92, Leu-95 to Thr-100.	AR096: 1, AR104: 1, AR060: 1, AR089: 1, AR061: 0, AR033: 0, AR039: 0, AR055: 0, AR052: 0 L0595: 14, H0521: 7, L0783: 5, H0520: 5, H0547: 5, L0593: 5, S0356: 3, H0615: 3, L0794: 3, L0776: 3, H0519: 3, L0747: 3, L0596: 3, H0599: 2, H0251: 2, H0622: 2, H0038: 2, H0494: 2, L0769: 2, L0764: 2, L0771: 2, L0766: 2, L0740: 2, L0754: 2, L0755:			53-69



803	HKAA37	871827	813	323 - 886	2218	Ile-162 to Pro-168, Glu-175 to Lys-188.	2, L0731: 2, H0657: 1, H0341: 1, H0663: 1, S0408: 1, S0045: 1, H0393: 1, H0331: 1, H0574: 1, T0114: 1, H0318: 1, H0046: 1, H0266: 1, H0328: 1, H0039: 1, H0591: 1, T0042: 1, H0561: 1, H0641: 1, S0002: 1, L0761: 1, L0800: 1, L0498: 1, L0803: 1, L0774: 1, L0805: 1, L0657: 1, S0126: 1, H0435: 1, S0454: 1, H0134: 1, H0436: 1, S0027: 1, L0749: 1, L0750: 1, L0591: 1, H0667: 1, H0542: 1, H0543: 1 and H0423: 1.					104-120, 80-97, 54- 70, 12-28, 122-138, 32-48
804	HACCB78	871878	814	121 - 588	2219		AR033: 2, AR053: 1, AR089: 1, AR060: 1, AR096: 1, AR052: 0, AR061: 0, AR039: 0  AR052: 16, AR053: 15, AR096: 13, AR055: 13, AR089: 10, AR033: 10, AR060: 9, AR061: 7, AR104: 6, AR039: 4 L0777: 3, L0769: 2, L0521: 2, L0665: 2, L0749:					26-48, 72- 88, 6-23, 91-107

805	HMAKM2 7	871887	815	866 - 1252	2220				2, L0758: 2, L0604: 2, H0624: 1, H0351: 1, H0586: 1, H0333: 1, H0427: 1, S0280: 1, L0021: 1, S0010: 1, H0194: 1, H0620: 1, H0051: 1, H0033: 1, H0090: 1, H0038: 1, L0637: 1, L0794: 1, L0766: 1, L0774: 1, L0775: 1, L0776: 1, L0512: 1, L0783: 1, L0809: 1, L0663: 1, H0547: 1, H0682: 1, S3014: 1, L0439: 1, L0752: 1 and H0506: 1. AR055: 6, AR033: 5, AR052: 5, AR053: 5, AR060: 4, AR104: 4, AR096: 4, AR061: 3, AR089: 3, AR039: 0 L0438: 6, L0439: 5, H0661: 3, L0776: 3, H0556: 2, H0100: 2, L0598: 2, L0764: 2, L0766: 2, L0659: 2, H0672: 2, L0777: 2, L0731: 2, H0170: 1, H0171: 1, H0265: 1, H0140: 1, S0114: 1, H0657: 1, H0656: 1, H0638: 1, S0418: 1, S0408: 1, S0046: 1, H0411: 1, S0278: 1, H0550: 1, S0222: 1, T0104: 1, H0600:				58-82, 12- 28
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806	HTLEO76	871905	816	80 - 439	2221	Arg-16 to Thr-22.	1, S0280: 1, S0474: 1, H0007: 1, T0110: 1, H0046: 1, H0457: 1, H0150: 1, H0620: 1, H0057: 1, H0051: 1, H0039: 1, H0030: 1, L0055: 1, H0090: 1, H0413: 1, H0623: 1, H0059: 1, H0647: 1, H0529: 1, L0770: 1, L0646: 1, L0645: 1, L0521: 1, L0794: 1, L0650: 1, L0789: 1, L0666: 1, L0663: 1, L0664: 1, H0144: 1, H0547: 1, S0152: 1, H0576: 1, L0740: 1, L0747: 1, L0750: 1, L0756: 1, L0779: 1, L0757: 1, L0758: 1, L0595: 1 and H0422: 1, AR096: 34, AR039: 27, AR089: 25, AR104: 18, AR060: 16, AR052: 14, AR033: 11, AR053: 10, AR055: 9, AR061: 6 H0253: 1, H0050: 1 and L0794: 1.							100-120, 54-71, 1-17	
807	HTPBR76	871944	817	467 - 856	2222	Met-1 to Ser-7.	AR033: 9, AR104: 6, AR055: 5, AR061: 5, AR039: 4, AR053: 3, AR060: 3, AR089: 3, AR052: 2, AR096: 2								41-57, 10-26

808	HNTNH42	871982	818	1 - 768	2223	Ala-9 to Thr-14, Pro-25 to Asp-37, Gln-52 to Ile-59, Thr-80 to Pro-93.	L0771: 2, L0662: 2, L0756: 2, L0591: 2, S0282: 1, S0358: 1, S0444: 1, S0408: 1, S0010: 1, S0049: 1, H0327: 1, H0569: 1, H0014: 1, H0051: 1, H0039: 1, L0770: 1, L3905: 1, L0761: 1, L0774: 1, L0659: 1, L0789: 1, S0374: 1, L0438: 1, L0439: 1, L0747: 1, L0779: 1, L0777: 1, S0260: 1 and L0596: 1. AR052: 218, AR096: 199, AR089: 163, AR053: 162, AR060: 131, AR039: 50, AR033: 46, AR061: 41, AR104: 38, AR055: 18 L0731: 9, L0665: 6, H0024: 4, L0745: 4, L0747: 4, L0662: 3, L0794: 3, H0550: 2, H0081: 2, H0012: 2, S0022: 2, H0100: 2, L0769: 2, L0764: 2, L0659: 2, H0520: 2, L0777: 2, L0759: 2, H0685: 1, S0040: 1, S0354: 1, H0351: 1, H0392: 1, H0586: 1, L0021: 1, H0253: 1, L0157: 1, H0123: 1, H0050: 1, L0471: 1, H0328: 1, H0615: 1,							120-152
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809	HFRCB84	871985	819	123 - 554	2224				H0063: 1, L0598: 1, L0770: 1, L0638: 1, L0521: 1, L0768: 1, L0776: 1, L0629: 1, L0657: 1, L0783: 1, L0809: 1, L0666: 1, L0663: 1, S0148: 1, H0670: 1, H0134: 1 and L0779: 1. AR055: 4, AR039: 0, AR061: 0, AR096: 0, AR060: 0, AR089: 0 H0738: 1, S0220: 1 and S0050: 1.			1-35, 29- 50, 76-94, 101-117	
810	HLWDZ48	871994	820	97 - 645	2225				AR033: 16, AR096: 13, AR053: 13, AR104: 13, AR089: 12, AR052: 12, AR060: 8, AR039: 8, AR061: 6, AR055: 5 L0755: 20, L0740: 18, L0748: 14, L0749: 11, L0750: 10, L0766: 9, H0494: 8, L0769: 8, L0752: 8, L0754: 7, L0771: 6, L0758: 6, S0028: 5, L0747: 5, L0591: 5, S0360: 4, H0266: 4, H0657: 3, S0045: 3, H0575: 3, S0010: 3, L0768: 3, L0665: 3, S0126: 3, S0152: 3, L0439: 3, L0753: 3, L0731: 3, L0757:			129-148, 99-115, 79-95	

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811	HKAOC61	872013	821	170 - 628	2226		1, H0316: 1, H0038: 1, H0551: 1, H0412: 1, H0059: 1, H0334: 1, S0150: 1, H0130: 1, S0210: 1, S0422: 1, L0638: 1, L0667: 1, L0372: 1, L0803: 1, L0774: 1, L0376: 1, L0784: 1, L0655: 1, L0659: 1, L0383: 1, L0382: 1, L0809: 1, L0792: 1, S0216: 1, H0144: 1, H0691: 1, S0148: 1, H0593: 1, H0682: 1, S0330: 1, H0521: 1, H0522: 1, H0704: 1, H0436: 1, S0027: 1, L0786: 1, L0759: 1, H0707: 1, L0480: 1, L0604: 1, S0192: 1 and S0460: 1. AR104: 19, AR061: 19, AR033: 18, AR055: 15, AR089: 15, AR060: 14, AR052: 9, AR039: 8, AR096: 8, AR053: 6 L0751: 7, L0769: 6, L0750: 5, L0752: 5, H0052: 4, L0771: 4, L0775: 4, L0758: 4, H0556: 3, L0665: 3, H0486: 2, S0010: 2, H0620: 2, T0006: 2, H0181: 2, H0494: 2, L0774: 2, L0375: 2, L0776: 2, L0512:				55-73, 6- 22, 84- 100, 24-40
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812	HHEMJ13	872036	822	31 - 648	2227	Asn-33 to Thr-38,	2, L0659: 2, H0555: 2, S0206: 2, L0740: 2, L0747: 2, L0596: 2, L0588: 2, S0276: 2, H0624: 1, S0402: 1, T0049: 1, H0341: 1, H0662: 1, S0358: 1, S0376: 1, S0360: 1, S0045: 1, S0476: 1, L0717: 1, H0351: 1, S0222: 1, H0455: 1, T0114: 1, L0021: 1, H0618: 1, T0048: 1, H0318: 1, L0109: 1, H0309: 1, H0544: 1, H0546: 1, H0545: 1, H0009: 1, H0123: 1, L0471: 1, H0424: 1, H0031: 1, H0628: 1, H0617: 1, H0063: 1, H0059: 1, H0100: 1, H0625: 1, H0633: 1, H0646: 1, H0517: 1, L0770: 1, L0764: 1, L0766: 1, L0655: 1, L0657: 1, L0526: 1, L0783: 1, L0809: 1, L0544: 1, L0529: 1, L0664: 1, S0428: 1, H0593: 1, S0126: 1, H0682: 1, H0659: 1, H0670: 1, H0648: 1, L0611: 1, S0432: 1, L0756: 1, L0757: 1, S0436: 1 and S0194: 1.					106-122,
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Thr-60 to Gln-71.	AR053: 6, AR089: 5, AR060: 4, AR033: 4, AR039: 3, AR055: 2, AR104: 1, AR061: 1 H0457: 5, H0014: 5, L0779: 5, S0440: 4, S0374: 4, L0750: 4, S0358: 3, S0408: 3, H0553: 3, L0766: 3, L0665: 3, S0192: 3, S0212: 2, S0360: 2, H0497: 2, H0013: 2, S0003: 2, L0646: 2, L0662: 2, L0659: 2, L0663: 2, H0696: 2, L0740: 2, L0758: 2, T0002: 1, H0656: 1, H0638: 1, S0354: 1, S0376: 1, H0580: 1, L0467: 1, H0393: 1, S0222: 1, H0592: 1, H0587: 1, H0331: 1, H0156: 1, S0474: 1, H0581: 1, H0597: 1, H0050: 1, T0003: 1, H0015: 1, H0354: 1, H0271: 1, S0022: 1, H0032: 1, H0673: 1, H0090: 1, H0038: 1, H0616: 1, H0488: 1, H0561: 1, H0633: 1, S0144: 1, H0529: 1, L0520: 1, L0770: 1, L0373: 1, L0773: 1, L0768: 1, L0794: 1, L0388: 1, L0806: 1, L0656:						70-87
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813	HTFOA36	872070	823	41 - 871	2228	Arg-13 to Arg-34, Gly-45 to Asn-50, His-198 to Pro-211, His-255 to Tyr-262.	1, L0809: 1, L0789: 1, L0666: 1, L0664: 1, S0052: 1, L0438: 1, H0684: 1, H0539: 1, S0152: 1, S0146: 1, H0555: 1, H0478: 1, L0609: 1, S0027: 1, L0747: 1, L0777: 1, L0592: 1, S0242: 1, H0543: 1, H0677: 1 and H0506: 1.				
			824	49 - 432	2229	Tyr-26 to Thr-34.	AR096: 1, AR052: 1, AR089: 0, AR055: 0, AR061: 0, AR039: 0, AR060: 0, AR033: 0, AR104: 0, AR053: 0 S0053: 1, S0216: 1 and S0424: 1.				163-196, 73-89
814	HULEW22	872087	824	49 - 432	2229	Tyr-26 to Thr-34.	AR096: 2, AR089: 1, AR104: 1, AR033: 1, AR060: 0, AR061: 0, AR053: 0, AR052: 0, AR039: 0 H0208: 1, H0530: 1, H0494: 1 and L0654: 1.				56-73
815	HWADE54	872092	825	2324 - 591	2230		AR096: 3, AR061: 2, AR089: 2, AR060: 2, AR055: 1, AR053: 1, AR033: 1, AR052: 1, AR104: 0 H0617: 6, L0794: 6,				434-457, 352-372, 464-481, 498-514, 90-108, 415-431,

					L0803: 6, L0663: 5, L0747: 5, L0758: 5, H0039: 4, L0731: 4, L0804: 3, L0806: 3, L0665: 3, L0439: 3, H0265: 2, H0556: 2, S0360: 2, H0575: 2, H0618: 2, H0253: 2, H0581: 2, H0546: 2, H0424: 2, H0030: 2, H0494: 2, L0769: 2, L0662: 2, L0768: 2, L0809: 2, L0791: 2, H0684: 2, S0380: 2, L0743: 2, L0744: 2, L0748: 2, L0740: 2, L0756: 2, L0603: 2, H0624: 1, H0171: 1, T0002: 1, H0294: 1, S0114: 1, S0134: 1, S0116: 1, H0483: 1, H0255: 1, S0418: 1, S0420: 1, S0442: 1, S0354: 1, S0300: 1, S0278: 1, S0222: 1, H0486: 1, L0021: 1, H0052: 1, H0545: 1, H0009: 1, H0081: 1, H0050: 1, L0471: 1, H0012: 1, H0275: 1, H0179: 1, H0687: 1, H0290: 1, H0252: 1, H0553: 1, H0644: 1, H0182: 1, H0674: 1, H0040: 1, H0551: 1, H0059: 1, T0041: 1, H0625: 1, L0763: 1, L0761: 1.	529-545, 220-236, 375-391
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816	HEMH46	872093	826	60 - 596	2231	Ala-14 to Gly-23, Gly-28 to Ser-34, Gly-56 to Pro-66, Asp-74 to Ala-80, Pro-109 to Tyr-114, Pro-165 to Gln-174.	L0646: 1, L0374: 1, L0644: 1, L0764: 1, L0771: 1, L0649: 1, L0659: 1, L0542: 1, L0783: 1, L0789: 1, L0790: 1, L0792: 1, L0666: 1, S0053: 1, S0216: 1, H0144: 1, L0352: 1, H0547: 1, H0593: 1, H0689: 1, H0435: 1, H0670: 1, S0330: 1, H0521: 1, S0406: 1, H0631: 1, S3012: 1, S3014: 1, L0749: 1, L0755: 1, H0445: 1, S0436: 1, L0595: 1, S0011: 1, H0542: 1, H0423: 1 and H0506: 1.				135-152
817	HFPIX46	872113	827	1042 - 1389	2232	Met-1 to Ser-8, Arg-55 to Gly-60, Val-93 to Leu-99.	AR055: 8, AR033: 8, AR060: 5, AR061: 5, AR052: 4, AR096: 4, AR053: 4, AR104: 4, AR089: 3, AR039: 2 H0550: 1, S0222: 1, H0057: 1, S6028: 1, H0031: 1, H0560: 1, S0002: 1,				62-79, 98- 114

818	HHPDK44	872141	828	158 - 733	2233				S0426: 1, L0769: 1, L0775: 1, L0741: 1, L0740: 1, L0758: 1 and L0366: 1. AR096: 2, AR055: 2, AR089: 1, AR061: 1, AR104: 1, AR060: 0, AR053: 0, AR039: 0, AR033: 0, AR052: 0 L0805: 5, L0750: 3, L0777: 3, H0591: 2, L0803: 2, L0804: 2, H0520: 2, H0547: 2, L0744: 2, L0779: 2, L0752: 2, L0731: 2, S0282: 1, S0360: 1, S0300: 1, H0411: 1, H0013: 1, H0599: 1, H0042: 1, H0581: 1, H0251: 1, H0596: 1, H0123: 1, H0620: 1, H0014: 1, H0051: 1, H0328: 1, H0553: 1, H0169: 1, H0413: 1, S0422: 1, L0776: 1, L0791: 1, H0144: 1, H0519: 1, H0521: 1, H0522: 1, L0356: 1, L0439: 1, L0756: 1, L0780: 1, L0753: 1 and L0759: 1.			53-91, 51-67
819	HE2FK85	872190	829	296 - 841	2234				AR033: 2, AR096: 2, AR104: 2, AR053: 2, AR060: 2, AR061: 2,		4-26, 38-64, 81-110, 154-	

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820	HPQSL36	872224	830	48 - 404	2235			1, H0648: 1, S0330: 1, H0539: 1, H0521: 1, H0522: 1, S0404: 1, S0028: 1, S0206: 1, L0786: 1, L0780: 1, L0753: 1, L0755: 1, S0260: 1, S0434: 1, L0480: 1, L0591: 1, H0668: 1, S0026: 1, H0667: 1 and H0008: 1.				53-83, 73- 95, 101- 118, 20- 36, 2-18
821	HEQBF64	872357	831	18 - 680	2236	Thr-68 to Gln-82, Val-198 to Val-203, Glu-205 to Asp-221.		AR039: 60, AR052: 32, AR053: 32, AR104: 27, AR033: 27, AR055: 26, AR089: 24, AR096: 21, AR060: 20, AR061: 12 S0136: 1 and H0521: 1. AR052: 13, AR053: 11, AR033: 10, AR060: 10, AR096: 9, AR061: 8, AR089: 7, AR104: 6, AR039: 5, AR055: 4 L0766: 11, H0556: 8, L0731: 6, H0265: 4, H0009: 3, H0083: 3, H0124: 3, H0509: 3, L0752: 3, S0116: 2, H0638: 2, S0356: 2, S0354: 2, S0408: 2, S0346: 2, H0560: 2, S0002: 2, L0805: 2, L0659: 2, L0438: 2, S0126: 2, L0740: 2,				6-24, 27- 46, 89- 105, 114- 130, 163- 179



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822	HAMGB22	872526	832	2389 - 2081	2237	Lys-25 to Gln-31, Gln-94 to Tyr-103.	<p>S0027: 1, L0744: 1, L0748: 1, L0439: 1, L0750: 1, L0779: 1, L0755: 1, L0759: 1, H0445: 1, H0653: 1, H0665: 1, H0542: 1, S0424: 1 and S0384: 1.</p> <p>AR033: 3, AR053: 3, AR052: 3, AR096: 3, AR089: 2, AR060: 2, AR104: 2, AR039: 2, AR055: 2, AR061: 1, L0766: 7, L0758: 3, L0759: 3, H0038: 2, H0560: 2, L0804: 2, L0775: 2, L0751: 2, L0779: 2, L0595: 2, H0656: 1, S0212: 1, H0664: 1, S0354: 1, L0011: 1, H0156: 1, H0599: 1, S0346: 1, H0581: 1, H0673: 1, H0591: 1, H0413: 1, H0623: 1, S0038: 1, L0370: 1, H0561: 1, S0422: 1, L0770: 1, L0772: 1, L0642: 1, L0803: 1, L0774: 1, L0656: 1, L0663: 1, S0428: 1, H0519: 1, S0330: 1, H0539: 1, H0521: 1, H0555: 1, H0576: 1, L0588: 1, L0605: 1 and H0667: 1.</p>				66-83, 7-23
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823	HDABD89	872527	833	57 - 1514	2238	His-66 to Pro-80, Gly-139 to Ser-146, Phe-270 to Lys-275.	AR055: 4, AR089: 3, AR052: 2, AR033: 2, AR096: 2, AR053: 1, AR060: 1, AR061: 1, AR104: 1, AR039: 0 L0439: 26, L0438: 8, S0007: 7, H0547: 5, L0754: 5, H0618: 4, H0546: 4, H0617: 4, L0747: 4, S0376: 3, H0013: 3, H0253: 3, H0052: 3, H0009: 3, L0769: 3, S0206: 3, L0748: 3, H0295: 2, S0045: 2, S0046: 2, H0370: 2, H0123: 2, L0471: 2, H0135: 2, H0100: 2, L0766: 2, H0144: 2, H0539: 2, L0758: 2, L0588: 2, L0595: 2, L0411: 1, H0170: 1, H0556: 1, H0686: 1, S0040: 1, S0342: 1, H0657: 1, H0663: 1, H0662: 1, L0717: 1, H0602: 1, H0497: 1, H0333: 1, T0039: 1, H0156: 1, H0599: 1, T0048: 1, H0196: 1, H0545: 1, H0178: 1, H0567: 1, H0620: 1, H0023: 1, S0051: 1, T0010: 1, H0266: 1, S0022: 1, H0039: 1, H0628: 1, H0606: 1, H0032: 1,			149-165, 216-232
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825	HHEFL55	873186	835	98 - 661	2240	Asp-2 to Arg-9.	2, S0442: 2, H0586: 2, H0587: 2, H0427: 2, H0581: 2, L0157: 2, L0769: 2, L0775: 2, L0806: 2, L0659: 2, L0665: 2, H0144: 2, S0374: 2, L0438: 2, L0731: 2, L0596: 2, L0599: 2, H0685: 1, S0116: 1, H0306: 1, S0358: 1, S0408: 1, H0592: 1, H0706: 1, H0036: 1, S0346: 1, L0307: 1, H0251: 1, H0309: 1, T0110: 1, H0231: 1, H0057: 1, H0014: 1, H0510: 1, S0250: 1, H0252: 1, T0006: 1, H0030: 1, H0031: 1, H0553: 1, H0644: 1, H0361: 1, H0591: 1, H0433: 1, S0002: 1, L0761: 1, L0650: 1, L0784: 1, L0805: 1, L0655: 1, L0606: 1, L0515: 1, L0783: 1, L0809: 1, L0532: 1, L0663: 1, H0690: 1, H0518: 1, S0152: 1, H0521: 1, S0037: 1, L0744: 1, L0777: 1, S0260: 1, L0366: 1, H0677: 1, H0506: 1 and H0008: 1.					145-174, 70-86, 94-	
							AR089: 1, AR033: 1, AR055: 1, AR061: 0,						

AR096: 0, AR104: 0, AR060: 0, AR053: 0, AR039: 0, AR052: 0 L0748: 7, L0747: 7, L0777: 7, L0731: 7, L0803: 6, S0212: 4, L0751: 4, L0754: 4, S0358: 3, L0794: 3, L0517: 3, L0809: 3, H0663: 2, S0038: 2, L0637: 2, L0771: 2, L0775: 2, L0526: 2, L0783: 2, L0790: 2, H0144: 2, H0658: 2, L0744: 2, L0439: 2, L0752: 2, L0758: 2, L0594: 2, L0603: 2, H0624: 1, H0656: 1, S0408: 1, H0393: 1, H0549: 1, H0333: 1, L0477: 1, S0010: 1, H0581: 1, H0052: 1, H0567: 1, H0571: 1, H0011: 1, H0012: 1, H0620: 1, H0083: 1, H0099: 1, H0615: 1, H0688: 1, H0628: 1, H0135: 1, H0038: 1, H0616: 1, H0087: 1, H0264: 1, H0412: 1, T0042: 1, H0396: 1, H0647: 1, L0770: 1, L0662: 1, L0768: 1, L0766: 1, L0804: 1, L0806: 1, L0805: 1, L0776: 1, L0657: 1, L0558: 1,	110
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826	HHFJG66	873355	836	1277 - 2503	2241	Arg-16 to Thr-21, Gly-31 to Thr-36, Thr-53 to Val-68, Val-72 to Ser-86, Ser-121 to Arg-127, Met-151 to Ile-157, Asn-160 to Phe-176, Pro-190 to Val-198, Arg-293 to Gly-298, Glu-304 to Asp-312, Ser-319 to Ser-325, Gln-330 to Glu-336, Leu-386 to Asp-392.	L0792: 1, L0663: 1, H0520: 1, H0547: 1, H0519: 1, H0670: 1, H0672: 1, S0328: 1, S0380: 1, L0779: 1, H0668: 1, H0667: 1, S0192: 1 and H0542: 1. AR055: 6, AR033: 5, AR052: 5, AR089: 5, AR053: 4, AR060: 4, AR061: 4, AR039: 3, AR104: 3, AR096: 2, H0295: 3, H0618: 3, H0052: 3, L0662: 3, H0619: 2, S0222: 2, L0768: 2, L0803: 2, H0521: 2, L0439: 2, L0754: 2, L0779: 2, L0758: 2, H0542: 2, S0114: 1, H0341: 1, H0483: 1, H0559: 1, L0586: 1, H0013: 1, H0253: 1, H0123: 1, H0012: 1, H0271: 1, H0687: 1, H0488: 1, H0413: 1, H0494: 1, S0150: 1, H0529: 1, L0637: 1, L0372: 1, L0643: 1, L0644: 1, L0645: 1, L0774: 1, L0666: 1, L0663: 1, L0664: 1, H0547: 1, H0519: 1, H0690: 1, S0328: 1, S0378: 1, S0190: 1, H0436: 1, S0037: 1,	240-257, 86-102, 362-378		
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827	HBMWZ8 5	873653	837	476 - 778	2242	Thr-22 to Thr-33, Leu-92 to Thr-97.	S0027: 1, L0750: 1, L0601: 1, L0366: 1, S0424: 1 and H0506: 1. AR052: 114, AR053: 78, AR096: 69, AR055: 65, AR089: 48, AR039: 46, AR033: 46, AR104: 41, AR061: 38, AR060: 37 S0114: 4, S0010: 3, H0059: 3, H0171: 2, S0116: 2, S0046: 2, S0051: 2, S0126: 2, S0134: 1, S0218: 1, H0255: 1, S0045: 1, S0616: 1, S0222: 1, H0632: 1, H0013: 1, H0251: 1, H0263: 1, H0200: 1, H0628: 1, H0674: 1, H0135: 1, H0038: 1, H0087: 1, T0090: 1, S0150: 1, S0142: 1, S0044: 1, H0576: 1 and S0026: 1.				57-76, 2- 18
828	HITTEL61	873679	838	239 - 622	2243	Gln-3 to Trp-10.	AR061: 50, AR033: 45, AR089: 41, AR060: 36, AR055: 35, AR096: 33, AR053: 32, AR052: 32, AR104: 17, AR039: 10 H0040: 2, H0087: 1 and L0750: 1.				67-83
829	HHEKA25	873756	839	61 - 768	2244	Met-1 to Pro-7.	AR061: 11, AR089: 4, L0750: 1.	17p11.2	100710,	122-155,	



830	HTLEH76	873788	840	354 - 881	2245			AR039: 4, AR033: 4, AR104: 3, AR060: 3, AR055: 3, AR053: 3, AR052: 3, AR096: 2 L0731: 3, H0556: 2, T0109: 2, H0124: 2, L0754: 2, H0483: 1, S0358: 1, H0599: 1, H0081: 1, H0012: 1, H0024: 1, H0615: 1, H0622: 1, H0316: 1, S0036: 1, H0413: 1, H0130: 1, L0766: 1, S0126: 1 and H0542: 1.	182290, 201475, 270200, 601097, 601097, 601097, 602666	194-216, 86-102, 52-68
831	HHEVQ56	874064	841	325 - 645	2246	Ser-101 to Asn-106.		AR055: 5, AR060: 3, AR089: 3, AR061: 3, AR033: 3, AR052: 2, AR104: 1, AR096: 1, AR053: 0, AR039: 0 H0253: 7, H0618: 6, L0758: 2, L0603: 2, H0050: 1, H0014: 1 and L0769: 1. AR096: 4, AR033: 3, AR039: 3, AR053: 3, AR104: 3, AR052: 3, AR089: 2, AR061: 2, AR060: 2, AR055: 2 L0439: 5, L0777: 5, H0052: 4, L0803: 4, L0789: 4, L0666: 4, H0556: 3,		65-91, 15- 36, 42-58

832	HTPHY39	874346	842	410 -	2247	Asp-2 to Asn-9,	H0090: 3, L0770: 3, L0766: 3, H0670: 3, L0747: 3, L0756: 3, L0755: 3, S0354: 2, S0408: 2, H0580: 2, L0021: 2, H0135: 2, L0768: 2, L0805: 2, L0809: 2, L0787: 2, L0438: 2, H0547: 2, S0406: 2, L0754: 2, L0745: 2, L0758: 2, L0759: 2, L0393: 1, H0657: 1, H0656: 1, H0661: 1, H0662: 1, S0356: 1, S0358: 1, S0360: 1, H0549: 1, H0486: 1, H0581: 1, H0009: 1, H0014: 1, H0548: 1, H0268: 1, S0015: 1, S0144: 1, S0344: 1, L0769: 1, L0800: 1, L0662: 1, L0767: 1, L0794: 1, L0804: 1, L0774: 1, L0775: 1, L0375: 1, L0632: 1, L0655: 1, L0807: 1, L0659: 1, L0517: 1, L0783: 1, L0647: 1, L0663: 1, L0664: 1, L0665: 1, L0352: 1, H0690: 1, H0521: 1, S0044: 1, L0740: 1, L0749: 1, L0752: 1, L0731: 1, S0192: 1, H0543: 1, H0423: 1 and H0506: 1.	AR055: 10, AR039: 9,				119-139
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				841		Val-21 to Leu-29, Pro-31 to Gly-36, Leu-64 to Gly-69, Gln-77 to Tyr-82, Glu-84 to Gly-92, Glu-107 to His-118.	AR053: 8, AR033: 7, AR060: 7, AR089: 7, AR052: 5, AR096: 5, AR061: 5, AR104: 4 H0437: 1, S0280: 1, T0110: 1, H0622: 1, L0745: 1, L0746: 1, L0731: 1 and L0596: 1.				
833	HPCRR53	874354	843	74 - 454	2248	Arg-112 to Ile-118, Tyr-121 to Ala-127.	AR104: 1, AR096: 1, AR089: 1, AR033: 1, AR060: 1, AR061: 1, AR039: 0, AR055: 0, AR053: 0, AR052: 0				54-77, 86- 102
834	HLQEW26	874356	844	226 - 561	2249	Thr-29 to His-47.	AR052: 25, AR089: 20, AR033: 17, AR060: 16, AR055: 15, AR053: 15, AR104: 14, AR039: 9, AR061: 8, AR096: 8 L0662: 5, L0777: 5, L0805: 4, L0779: 4, L0755: 4, S0380: 3, L0750: 3, L0598: 2, L0770: 2, L0769: 2, L0637: 2, L0771: 2, L0774: 2, L0659: 2, L0663: 2, L0438: 2, H0521: 2, S0404: 2, L0439: 2, L0754: 2, S0442: 1, S0358: 1, S0360: 1, S0408: 1, H0574:				7-24, 80- 96

835	HSLJR04	874369	845	1102 - 1446	2250			1, H0156: 1, H0251: 1, L0738: 1, H0563: 1, H0566: 1, L0471: 1, H0373: 1, L0055: 1, H0163: 1, H0038: 1, H0477: 1, H0413: 1, S0422: 1, L0363: 1, L0768: 1, L0794: 1, L0804: 1, L0650: 1, L0775: 1, L0526: 1, L0809: 1, L0789: 1, L0666: 1, L0664: 1, H0691: 1, H0648: 1, H0696: 1, S0406: 1, L0751: 1, L0745: 1, L0752: 1, L0758: 1, S0260: 1, H0444: 1, L0596: 1, L0592: 1 and L0608: 1.				75-109, 25-41
836	HCYBG26	874427	846	11 - 385	2251	Tyr-61 to Thr-67.		AR096: 2, AR055: 1, AR060: 1, AR089: 1, AR053: 0, AR033: 0, AR061: 0, AR104: 0, AR052: 0, AR039: 0 S0028: 3, H0204: 2, S0031: 2, H0381: 1, S0045: 1, L0105: 1, H0617: 1, S0144: 1, S0052: 1, S0152: 1 and S0390: 1.				96-120, 12-36, 69- 85, 42-58

837	HNGEZ52	874434	847	100 - 1254	2252			AR053: 54, AR052: 41 T0114: 2, H0644: 1, H0144: 1, H0521: 1 and L0750: 1.				238-254, 53-70, 199-215	
838	H2LAY37	874446	848	363 - 1172	2253	Asp-30 to Gly-38, Ser-71 to Arg-77, Leu-85 to Gly-91, Asp-127 to Gly-135, Glu-171 to Gly-176, Pro-182 to Glu-187.		AR055: 7, AR060: 3, AR053: 3, AR089: 3, AR052: 3, AR061: 2, AR033: 2, AR096: 2, AR039: 0, AR104: 0 S0049: 1, T0090: 1, S0052: 1 and L0779: 1.				51-67, 214-230, 232-248	

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	H0642: 1, H0643: 1, H0632: 1, T0040: 1, S0280: 1, H0599: 1, H0042: 1, H0120: 1, H0318: 1, H0581: 1, H0263: 1, H0121: 1, H0530: 1, H0045: 1, H0012: 1, H0350: 1, H0057: 1, H0015: 1, S0388: 1, S0051: 1, H0375: 1, H0061: 1, H0179: 1, S0022: 1, S0214: 1, L0483: 1, H0628: 1, H0617: 1, L0055: 1, H0165: 1, H0169: 1, H0674: 1, H0598: 1, H0591: 1, H0038: 1, H0040: 1, H0087: 1, H0551: 1, H0116: 1, H0272: 1, H0413: 1, L0351: 1, L0475: 1, S0448: 1, S0464: 1, S0306: 1, S0466: 1, H0130: 1, H0647: 1, H0646: 1, H0652: 1, S0344: 1, S0002: 1, L0598: 1, H0529: 1, L0520: 1, L0761: 1, L0667: 1, L0772: 1, L0645: 1, L0773: 1, L0521: 1, L0626: 1, L0794: 1, L0649: 1, L0522: 1, L0774: 1, L0653: 1, L0379: 1, L0657: 1, L0559: 1, L0526: 1, L0782: 1, L0382: 1, L0519: 1,	
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				534				AR052: 34, AR039: 33, AR089: 22, AR104: 19, AR060: 17, AR033: 13, AR055: 11, AR061: 7 S0356: 3				25-50, 7-30, 67-83
841	HNTMD17	874559	851	266 - 790	2256	Met-1 to Tyr-14, Val-91 to Pro-99, Asp-101 to Gln-112.		AR033: 8, AR096: 6, AR052: 5, AR039: 5, AR053: 4, AR089: 4, AR104: 4, AR060: 3, AR055: 2, AR061: 2 L0438: 4, L0746: 4, H0717: 2, H0013: 2, H0581: 2, H0656: 1, H0580: 1, H0415: 1, H0069: 1, H0590: 1, L0471: 1, S6028: 1, H0266: 1, S0003: 1, H0328: 1, H0553: 1, H0644: 1, H0591: 1, H0038: 1, S0438: 1, H0647: 1, H0529: 1, L0766: 1, S0374: 1, H0520: 1, H0547: 1, H0521: 1, L0752: 1, S0434: 1, S0192: 1 and H0542: 1.				155-171, 38-54
842	HMCZ52	874610	852	243 - 1187	2257	Pro-30 to Trp-38, Pro-100 to Lys-109, Tyr-129 to Ala-136, Val-144 to Lys-153, Pro-173 to Gly-178, Phe-193 to Asn-201,		AR055: 9, AR033: 8, AR052: 5, AR060: 5, AR096: 4, AR089: 4, AR061: 3, AR053: 3, AR104: 3, AR039: 2 L0779: 6, S0358: 4,				37-61, 12-28, 70-86, 238-254

843	HOSOL09	874620	853	126 - 725	2258	Gly-3 to His-9, Pro-88 to Lys-93, Arg-112 to Trp-117.	Glu-223 to Gly-239, Thr-258 to Gln-263, Arg-286 to Ser-292, Cys-300 to Gln-306.	H0596: 3, S0002: 3, H0521: 3, S0344: 2, L0766: 2, L0651: 2, L0805: 2, L0776: 2, L0666: 2, S0380: 2, S0406: 2, L0756: 2, S0434: 2, S0444: 1, S0360: 1, H0675: 1, H0676: 1, H0318: 1, H0046: 1, H0050: 1, H0083: 1, H0688: 1, H0628: 1, H0413: 1, L0520: 1, L0638: 1, L0373: 1, L0646: 1, L0800: 1, L0662: 1, L0794: 1, L0652: 1, L0657: 1, L0659: 1, S0374: 1, H0670: 1, L0750: 1, L0777: 1, L0731: 1 and H0543: 1.				50-84, 25- 43, 120- 136
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844	HLQHJ48	874643	854	32 - 751	2259	Pro-2 to Gly-11, Gln-14 to Pro-19, Ala-92 to Asn-101, Gly-132 to Gly-137, Leu-145 to Pro-160, Asp-183 to Gly-191.	1, S0344: 1, S0426: 1, L0598: 1, L0794: 1, L0804: 1, L0659: 1, L0809: 1, L0789: 1, L0664: 1, H0547: 1, H0660: 1, S0378: 1, L0751: 1, L0754: 1, L0779: 1, L0780: 1, L0758: 1, L0608: 1, S0026: 1 and H0543: 1.				223-240	
845	HTTDU01	874708	855	117 - 989	2260	Ala-133 to Gly-140, Val-165 to Gly-173.	AR055: 11, AR060: 5, AR053: 5, AR061: 5, AR033: 4, AR089: 4, AR052: 4, AR039: 3, AR096: 2, AR104: 2 L0439: 6, L0777: 3, H0632: 2, L0756: 2, S0360: 1, H0050: 1, H0688: 1, H0412: 1, H0494: 1, H0520: 1, H0670: 1 and L0758: 1. AR052: 33, AR053: 21, AR096: 18, AR089: 15, AR060: 13, AR055: 12, AR104: 12, AR033: 11, AR039: 8, AR061: 7 L0803: 6, H0040: 3, H0038: 2, L0756: 2, L0485: 2, L0593: 2, T0002: 1, S0040: 1, H0664: 1, S0356: 1, S0010: 1, T0110: 1,				51-69, 207-223, 141-157, 16-32, 186-202, 80-96	

846	HOSMQ26	874847	856	26 - 424	2261	Lys-8 to Thr-14, Glu-28 to Arg-34.	<p>S0003: 1, T0006: 1, H0032: 1, H0598: 1, H0488: 1, H0412: 1, L0369: 1, L0638: 1, L0662: 1, L0626: 1, L0794: 1, L0804: 1, L0774: 1, L0791: 1, L0666: 1, H0520: 1, H0626: 1, L0779: 1, L0758: 1, L0759: 1 and S0026: 1.</p> <p>AR055: 9, AR060: 8, AR096: 6, AR052: 6, AR033: 6, AR053: 5, AR089: 4, AR061: 4, AR104: 4, AR039: 4, L0747: 4, L0777: 4, L0753: 4, L0588: 4, H0046: 3, L0766: 3, H0313: 2, L0374: 2, L0764: 2, L0773: 2, L0776: 2, H0659: 2, L0748: 2, L0752: 2, L0591: 2, H0542: 2, T0002: 1, S0040: 1, S0212: 1, H0663: 1, S0418: 1, S0376: 1, S0045: 1, H0351: 1, H0497: 1, H0263: 1, H0123: 1, S0003: 1, H0615: 1, H0068: 1, H0090: 1, H0264: 1, H0538: 1, S0002: 1, S0426: 1, H0529: 1, L0769: 1, L0372: 1, L0642: 1, L0662:</p>	6p22	248611	103-130, 75-91
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847	HE8FA47	874915	857	1011 - 235	2262	Ser-59 to Trp-77, Lys-143 to Asp-150, Tyr-254 to Lys-259.	1, L0803: 1, L0375: 1, L0655: 1, L0659: 1, L0789: 1, H0520: 1, H0547: 1, H0660: 1, S0404: 1, H0631: 1, S3014: 1, L0749: 1, L0750: 1, L0779: 1, L0757: 1, L0581: 1, L0362: 1, S0276: 1 and H0423: 1. AR033: 10, AR104: 9, AR096: 8, AR052: 8, AR060: 8, AR089: 7, AR053: 7, AR055: 6, AR039: 4, AR061: 3 L0779: 9, L0755: 6, L0766: 5, L0748: 5, L0776: 4, H0013: 3, L0747: 3, L0777: 3, L0758: 3, L0770: 2, L0771: 2, L0775: 2, L0752: 2, H0543: 2, L0005: 1, S0358: 1, S0376: 1, S0046: 1, H0331: 1, H0486: 1, L0105: 1, H0014: 1, H0068: 1, H0616: 1, L0769: 1, L0772: 1, L0663: 1, L0664: 1, L0438: 1, H0658: 1, H0672: 1, H0555: 1, L0439: 1, L0740: 1, L0749: 1, L0731: 1, L0757: 1, L0759: 1, H0667: 1, H0423: 1, H0422: 1 and L0465: 1.					103-137, 80-105, 165-184, 221-241, 195-211
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848	HMTME42	874948	858	38 - 547	2263	Glu-4 to Ala-10, Glu-24 to Glu-30, Glu-34 to Lys-43, Gly-69 to Cys-78, Asn-127 to Glu-132, Arg-145 to Phe-150.	AR039: 1, AR053: 1, AR033: 1, AR096: 1, AR052: 1, AR104: 1, AR089: 1, AR061: 1, AR060: 1, AR055: 0 H0031: 2, S0126: 2, L0748: 2, H0624: 1, H0341: 1, S0282: 1, S0046: 1, H0369: 1, H0431: 1, H0244: 1, T0082: 1, H0012: 1, H0266: 1, H0615: 1, H0039: 1, H0032: 1, H0090: 1, H0551: 1, S0002: 1, H0529: 1, L0794: 1, L0766: 1, L0791: 1, H0144: 1, H0520: 1, H0525: 1, H0436: 1, S0031: 1, L0592: 1, L0485: 1, H0665: 1 and H0543: 1.			76-93
849	HRADL60	874960	859	194 - 1183	2264	Met-22 to Arg-28.	AR060: 2, AR055: 2, AR033: 2, AR089: 2, AR096: 1, AR061: 1, AR052: 1, AR104: 0, AR039: 0, AR053: 0 L0777: 12, L0766: 9, L0803: 6, L0748: 5, L0752: 5, L0758: 5, L0759: 5, L0666: 4, L0794: 3, L0805: 3, L0743: 3, L0747: 3, S0222: 2, H0457: 2, S0003: 2, L0649: 2, L0804: 2,			130-146, 208-225, 1-17, 183- 199

850	HWLMB5 5	875096	860	231 - 947	2265	Ser-69 to Asp-76, Pro-126 to Gly-131, Asp-137 to Arg-144.	L0809: 2, L0663: 2, L0664: 2, H0539: 2, L0744: 2, L0740: 2, L0596: 2, L0362: 2, S0026: 2, H0624: 1, H0170: 1, H0717: 1, T0049: 1, H0402: 1, H0638: 1, S0420: 1, L0454: 1, S0356: 1, S0444: 1, S0360: 1, H0637: 1, H0393: 1, L0717: 1, H0486: 1, T0082: 1, L0163: 1, H0594: 1, H0266: 1, H0416: 1, H0328: 1, H0622: 1, T0006: 1, H0553: 1, H0674: 1, H0163: 1, H0038: 1, H0634: 1, H0616: 1, H0551: 1, H0625: 1, H0538: 1, L0598: 1, L0770: 1, L0646: 1, L0764: 1, L0662: 1, L0375: 1, L0515: 1, L0659: 1, L0783: 1, L0789: 1, L0791: 1, T0068: 1, H0520: 1, H0547: 1, H0684: 1, H0658: 1, H0518: 1, S0013: 1, S0146: 1, H0555: 1, L0779: 1, L0780: 1, L0757: 1 and S0462: 1.				89-105, 13-29
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851	HUSGZ51	875230	861	9 - 1262	2266	Ile-43 to Arg-50, Phe-75 to Pro-83, Leu-109 to Val-116, Ile-122 to Thr-127, Pro-137 to Gly-149, Arg-184 to Gly-213, Lys-221 to Glu-228.	AR052: 0, AR053: 0 S0442: 6, L0777: 6, L0731: 5, L0775: 4, H0024: 3, H0586: 2, H0648: 2, H0521: 2, L0748: 2, H0638: 1, S0358: 1, S0376: 1, S0360: 1, H0587: 1, H0641: 1, H0646: 1, L0770: 1, L0643: 1, L0363: 1, L0803: 1, L0804: 1, L0783: 1, L0787: 1, L0666: 1, L0665: 1, H0593: 1, H0518: 1, S0406: 1 and L0779: 1. AR033: 13, AR053: 11, AR052: 10, AR089: 10, AR055: 7, AR060: 5, AR061: 5, AR096: 5, AR039: 4, AR104: 1 H0556: 10, L0748: 8, H0620: 7, L0747: 7, H0265: 5, L0637: 5, H0013: 4, H0551: 4, L0776: 4, L0663: 4, L0596: 4, H0622: 3, H0617: 3, L0772: 3, L0766: 3, S0126: 3, L0751: 3, L0752: 3, L0757: 3, S0031: 3, L0593: 3, H0657: 2, S0360: 2, S0222: 2, T0115: 2, H0009: 2, L0471: 2, H0594: 2, H0288: 2, H0039:					
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852	HWDAN8 6	875249	862	891 - 1205	2267			1, L0383: 1, L0665: 1, L0352: 1, H0593: 1, H0689: 1, H0682: 1, H0660: 1, S0328: 1, H0696: 1, S0044: 1, S0406: 1, S0037: 1, S3014: 1, S0206: 1, L0439: 1, L0754: 1, L0749: 1, L0750: 1, L0731: 1, L0759: 1, L0588: 1, L0362: 1, L0361: 1, H0653: 1, H0136: 1, S0196: 1, H0543: 1 and S0424: 1.	19q13	109560, 205900, 600652, 600757	55-71, 23- 39		
								AR052: 9, AR033: 8, AR055: 7, AR089: 7, AR096: 6, AR053: 6, AR060: 5, AR039: 5, AR104: 5, AR061: 4 L0769: 7, L0754: 7, L0777: 7, H0521: 5, L0809: 4, L0751: 4, H0556: 3, L0764: 3, L0771: 3, L0776: 3, H0555: 3, L0439: 3, H0624: 2, H0171: 2, S0442: 2, S0408: 2, H0318: 2, L0163: 2, H0673: 2, H0038: 2, S0142: 2, L0766: 2, H0539: 2, L0748: 2, L0750: 2, L0756: 2, L0731: 2, H0445: 2, H0265: 1, H0685: 1, H0717: 1, H0295: 1.					

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854	HBION06	875295	864	470	2269	Asn-18 to Cys-29, Tyr-51 to Tyr-59, Asp-113 to Gly-120, Ala-125 to Gly-130, Ala-212 to Ala-224.	AR089: 2, AR060: 2, AR033: 2, AR096: 1, AR055: 1, AR061: 1, AR104: 0, AR039: 0 S0300: 1 and H0204: 1. AR052: 28, AR053: 25, AR089: 10, AR055: 8, AR096: 8, AR033: 6, AR060: 4, AR039: 3, AR061: 3, AR104: 1 L0761: 8, L0806: 5, H0593: 5, H0436: 5, H0581: 4, H0052: 4, L0766: 4, H0521: 4, L0745: 4, L0731: 4, L0759: 4, S0356: 3, L0600: 3, H0624: 2, H0713: 2, H0333: 2, H0618: 2, H0546: 2, H0545: 2, H0457: 2, H0617: 2, H0606: 2, H0100: 2, L0770: 2, L0764: 2, L0774: 2, L0775: 2, L0653: 2, L0659: 2, L0547: 2, L0809: 2, L0666: 2, H0672: 2, H0539: 2, H0522: 2, L0751: 2, L0747: 2, L0750: 2, L0752: 2, L0757: 2, H0543: 2, H0583: 1, H0341: 1, H0484: 1, H0669: 1, H0306: 1, H0458: 1, S0418: 1, S0420: 1, H0675:				148-164, 178-194, 61-77
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855	HAPOO57	875330	865	41 - 1363	2270	Thr-94 to Ala-102.	1, H0676: 1, S0045: 1, H0550: 1, H0392: 1, H0592: 1, H0586: 1, H0587: 1, H0485: 1, H0635: 1, H0575: 1, H0253: 1, H0318: 1, H0544: 1, H0009: 1, H0688: 1, H0634: 1, H0087: 1, H0551: 1, L0351: 1, S0438: 1, H0641: 1, H0649: 1, S0002: 1, H0695: 1, L0763: 1, L3904: 1, L0773: 1, L0767: 1, L0649: 1, L0803: 1, L0650: 1, L0375: 1, L0776: 1, L0657: 1, L0783: 1, L4501: 1, L0663: 1, L0565: 1, H0519: 1, S0126: 1, H0689: 1, H0683: 1, H0684: 1, H0659: 1, H0670: 1, S0330: 1, S0380: 1, H0696: 1, H0134: 1, H0555: 1, L0609: 1, S0027: 1, S0028: 1, L0741: 1, L0743: 1, L0439: 1, L0777: 1, L0780: 1, S0434: 1, S0436: 1, H0216: 1, H0542: 1, H0423: 1 and H0506: 1.	AR052: 7, AR096: 6, AR061: 5, AR089: 5, AR053: 5, AR055: 4, AR060: 4, AR033: 4,	125-156, 358-387, 215-247, 68-90,
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						AR039: 3, AR104: 3 L0766: 8, L0439: 8, L0758: 7, H0521: 6, L0770: 5, L0665: 5, L0754: 5, L0756: 5, L0752: 5, L0663: 4, L0749: 4, H0575: 3, S0126: 3, L0740: 3, L0751: 3, L0747: 3, L0757: 3, H0657: 2, L0415: 2, S0356: 2, H0590: 2, S0003: 2, S0214: 2, H0644: 2, H0059: 2, S0422: 2, L0769: 2, L0800: 2, L0771: 2, L0662: 2, L0649: 2, L0803: 2, L0657: 2, L0659: 2, L0666: 2, L0438: 2, H0555: 2, L0750: 2, L0731: 2, S0194: 2, H0556: 1, T0002: 1, H0716: 1, S0218: 1, H0656: 1, H0662: 1, S0358: 1, S0376: 1, S0360: 1, S0408: 1, S0045: 1, S0476: 1, S0278: 1, H0632: 1, H0013: 1, H0156: 1, H0002: 1, H0036: 1, H0052: 1, L0738: 1, H0545: 1, H0046: 1, L0471: 1, H0020: 1, H0051: 1, H0622: 1, H0030: 1, H0617: 1, L0055: 1, H0708: 1 H0316: 1 H0412: 1			185-204, 45-61, 284-301, 24-40, 256-272, 322-338, 105-121
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856	HCROG59	875405	866	198 - 581	2271	Met-1 to Leu-8.	H0641: 1, H0529: 1, L0763: 1, L0764: 1, L0794: 1, L0389: 1, L0650: 1, L0805: 1, L0809: 1, L0543: 1, L0664: 1, S0374: 1, H0547: 1, H0690: 1, H0659: 1, H0660: 1, H0666: 1, S0380: 1, H0631: 1, S3014: 1, L0755: 1, L0759: 1, S0434: 1, H0665: 1, S0242: 1, S0276: 1 and H0423: 1.	17q23	106180, 138700, 139250, 150200, 154275, 176960, 249000, 253250	107-128	
							AR060: 3, AR089: 2, AR096: 2, AR053: 2, AR061: 2, AR033: 2, AR055: 2, AR039: 1, AR052: 1, AR104: 1, L0803: 5, L0777: 5, H0549: 3, H0150: 3, L0774: 3, L0809: 3, L0731: 3, H0662: 2, H0251: 2, L0769: 2, L0764: 2, L0648: 2, L0805: 2, L0746: 2, L0750: 2, L0779: 2, H0484: 1, S0356: 1, L0717: 1, H0550: 1, S0280: 1, T0082: 1, H0123: 1, H0024: 1, H0328: 1, H0644: 1, H0068: 1, L0794: 1, L0659: 1, H0693: 1, H0547: 1, H0689: 1, H0658: 1, H0696: 1, S0146: 1.				



857	HDTBL01	875452	867	86 - 421	2272	Arg-4 to Phe-9.	1, S0206: 1, L0740: 1, L0747: 1, L0749: 1, L0758: 1 and L0603: 1. AR052: 220, AR053: 179, AR096: 154, AR089: 80, AR039: 52, AR055: 50, AR061: 39, AR060: 28, AR033: 28, AR104: 20 H0486: 1, L0775: 1, H0631: 1, L0749: 1 and L0755: 1.				83-103, 51-67
858	HHFJY07	875510	868	82 - 552	2273	Glu-43 to Lys-51, Lys-94 to Ser-99.	AR033: 4, AR060: 2, AR089: 2, AR061: 1, AR096: 1, AR055: 1, AR039: 0, AR053: 0, AR104: 0, AR052: 0 L0777: 5, L0803: 4, H0539: 3, H0521: 3, L0439: 3, L0755: 3, L0731: 3, S0420: 2, H0619: 2, H0421: 2, S0049: 2, H0617: 2, L0640: 2, L0794: 2, L0658: 2, H0693: 2, S0126: 2, L0748: 2, L0747: 2, L0749: 2, L0759: 2, L0588: 2, L0601: 2, H0294: 1, H0650: 1, H0484: 1, H0306: 1, S0356: 1, S0442: 1, S0358: 1, S0007: 1, L0717: 1,				125-153

859	HOFMV44	875558	869	212 - 1138	2274	Arg-88 to Trp-97, Ser-106 to Ser-115, Gly-130 to Tyr-137, Pro-146 to Trp-151, Val-187 to Ser-196, Ile-234 to Val-246, Pro-249 to Thr-255, Thr-280 to Ser-288.	H0592: 1, H0069: 1, H0618: 1, H0253: 1, S0010: 1, H0545: 1, H0150: 1, H0620: 1, H0488: 1, H0412: 1, H0494: 1, S0440: 1, L0770: 1, L0796: 1, L0637: 1, L0761: 1, L0772: 1, L0646: 1, L0764: 1, L0766: 1, L0774: 1, L0806: 1, L0776: 1, L0657: 1, L0788: 1, L0789: 1, L0791: 1, L0666: 1, L0663: 1, L0665: 1, H0519: 1, H0593: 1, H0690: 1, H0682: 1, H0435: 1, H0518: 1, H0555: 1, L0743: 1, L0750: 1, L0779: 1, L0757: 1, L0758: 1, S0031: 1, S0434: 1 and H0542: 1.				H0592: 1, H0069: 1, H0618: 1, H0253: 1, S0010: 1, H0545: 1, H0150: 1, H0620: 1, H0488: 1, H0412: 1, H0494: 1, S0440: 1, L0770: 1, L0796: 1, L0637: 1, L0761: 1, L0772: 1, L0646: 1, L0764: 1, L0766: 1, L0774: 1, L0806: 1, L0776: 1, L0657: 1, L0788: 1, L0789: 1, L0791: 1, L0666: 1, L0663: 1, L0665: 1, H0519: 1, H0593: 1, H0690: 1, H0682: 1, H0435: 1, H0518: 1, H0555: 1, L0743: 1, L0750: 1, L0779: 1, L0757: 1, L0758: 1, S0031: 1, S0434: 1 and H0542: 1.	205-224, 161-177, 61-77, 114-130, 21-37
							AR096: 3, AR052: 3, AR033: 2, AR089: 2, AR053: 2, AR055: 2, AR060: 1, AR061: 1, AR104: 1, AR039: 0 H0556: 2, H0305: 2, H0589: 2, S0356: 1, S0132: 1, H0415: 1, H0635: 1, S6028: 1, H0598: 1, H0591: 1, H0494: 1, S0002: 1, L0766: 1, L0803: 1, H0539: 1, L0740: 1 and L0777: 1.					

860	HSLJN60	875559	870	51 - 392	2275	Pro-107 to Asn-114.	AR055: 11, AR052: 6, AR061: 5, AR089: 5, AR060: 5, AR096: 4, AR033: 4, AR053: 4, AR039: 3, AR104: 1 H0031: 2, L0731: 2, L0599: 2, H0052: 1, H0263: 1, S0250: 1, H0606: 1, L0055: 1, H0169: 1, H0560: 1, H0509: 1, L0644: 1, L0766: 1, L0661: 1, L0526: 1, L0666: 1, S0380: 1, S0390: 1, L0779: 1, L0608: 1 and S0462: 1.			40-61, 64- 80
861	IHWHGQ4 4	875575	871	240 - 662	2276	Pro-63 to Cys-69.	AR039: 2, AR033: 2, AR089: 1, AR061: 1, AR052: 1, AR060: 1, AR096: 0, AR055: 0, AR104: 0, AR053: 0 L0758: 6, L0743: 5, S0366: 4, L0770: 4, L0662: 4, H0253: 3, H0591: 3, L0749: 3, L0779: 3, L0731: 3, H0656: 2, S0360: 2, H0586: 2, H0270: 2, H0052: 2, H0009: 2, L0766: 2, L0776: 2, S0328: 2, L0747: 2, L0605: 2, L0485: 2, S0114: 1, H0650: 1, H0657: 1, S0116: 1, S0001: 1,	17		45-63, 88- 104

862	HCQDA63	875590	872	758 - 1150	2277	Cys-107 to Pro-113.	H0255: 1, S0356: 1, S0354: 1, H0455: 1, H0333: 1, H0599: 1, H0706: 1, H0421: 1, S0049: 1, H0309: 1, H0597: 1, L0471: 1, H0012: 1, H0057: 1, H0286: 1, H0428: 1, H0039: 1, H0213: 1, H0708: 1, S0036: 1, H0090: 1, H0488: 1, T0042: 1, S0464: 1, H0641: 1, S0002: 1, L0639: 1, L0761: 1, L0772: 1, L0372: 1, L0646: 1, L0641: 1, L0764: 1, L0381: 1, L0774: 1, L0651: 1, L0806: 1, L0655: 1, L0783: 1, L0663: 1, H0520: 1, H0689: 1, H0690: 1, H0670: 1, H0672: 1, H0539: 1, H0710: 1, S0044: 1, S0404: 1, L0744: 1, L0751: 1, L0750: 1, L0753: 1, H0444: 1, S0434: 1, S0011: 1, S0276: 1, S0196: 1, S0042: 1, S0458: 1 and H0677: 1.			66-86, 46- 62
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863	HMUBG89	875597	873	366 - 37	2278				L0803: 4, L0439: 3, L0777: 3, H0596: 2, L0471: 2, L0794: 2, L0776: 2, L0438: 2, L0744: 2, L0748: 2, L0750: 2, L0592: 2, S0470: 1, S0430: 1, S0222: 1, H0590: 1, S0474: 1, H0439: 1, H0024: 1, H0673: 1, H0400: 1, H0494: 1, L0521: 1, L0805: 1, L0664: 1, H0670: 1, H0555: 1, S0027: 1 and L0596: 1.				41-58, 73- 89, 2-18, 94-110
864	HCFC58	875638	874	1392 - 1009	2279				AR039: 47, AR104: 21, AR096: 20, AR033: 19, AR053: 15, AR052: 14, AR089: 13, AR060: 11, AR055: 10, AR061: 8 L0805: 3, L0649: 2, L0803: 2, L0439: 2, L0740: 2, L0749: 2, L0750: 2, S0360: 1, H0266: 1, H0529: 1, L0794: 1, L0776: 1, H0672: 1, H0710: 1, H0696: 1 and L0748: 1.				89-109, 19-35, 70- 86

	L0747: 14, L0769: 12, L0750: 11, L0789: 10, L0779: 10, L0805: 5, L0770: 4, L0766: 4, L0776: 4, S0356: 3, S0422: 3, L0375: 3, L0438: 3, L0759: 3, H0170: 2, H0656: 2, H0622: 2, L0771: 2, L0807: 2, S0328: 2, L0744: 2, L0748: 2, L0754: 2, L0749: 2, L0752: 2, L0753: 2, L0731: 2, S0436: 2, H0422: 2, H0352: 2, H0716: 1, H0341: 1, S0212: 1, H0483: 1, L0619: 1, S0360: 1, H0580: 1, S0007: 1, H0351: 1, S0222: 1, H0587: 1, H0333: 1, H0559: 1, T0114: 1, L0021: 1, S0474: 1, H0085: 1, H0012: 1, T0003: 1, H0024: 1, S0362: 1, S0051: 1, H0266: 1, H0417: 1, H0617: 1, H0032: 1, H0165: 1, H0634: 1, H0087: 1, H0412: 1, H0100: 1, L0800: 1, L0768: 1, L0794: 1, L0499: 1, L0803: 1, L0774: 1, L0775: 1, L0806: 1, L0659: 1, L0526: 1, L0663: 1, L0665: 1, H0144:	
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865	HWLMC4 9	875704	875	176 - 490	2280	Ser-45 to Gly-51.	1, T0068: 1, H0547: 1, H0670: 1, H0672: 1, H0522: 1, H0436: 1, L0439: 1, L0786: 1, L0780: 1, H0542: 1, H0543: 1 and S0424: 1. AR033: 10, AR089: 7, AR053: 6, AR061: 6, AR096: 6, AR055: 5, AR039: 5, AR052: 5, AR060: 4, AR104: 2 L0748: 2, S0376: 1, H0611: 1, H0036: 1, H0318: 1, H0052: 1 and L0766: 1.				83-105, 26-42	
866	HFCDF47	875724	876	279 - 1133	2281	Asn-84 to Ser-89.	AR053: 16, AR052: 13, AR089: 12, AR055: 12, AR033: 10, AR104: 9, AR039: 9, AR096: 9, AR060: 6, AR061: 6 S0356: 1 and H0009: 1.				59-77, 10- 27, 91- 107, 35-51	
867	HCRNJ24	875794	877	71 - 721	2282	Tyr-16 to Arg-23.	AR052: 4, AR096: 4, AR053: 3, AR033: 3, AR089: 3, AR060: 2, AR055: 2, AR104: 1, AR061: 1, AR039: 1 L0766: 4, S0356: 3, H0083: 2, H0266: 2, H0031: 2, L0666: 2, L0731: 2, H0543: 2, H0395: 1, S0040: 1, S0444: 1, S0045: 1,				183-203, 104-124, 132-148	

868	HCRNT27	875817	878	50 - 556	2283	Ser-13 to Ile-22, Asn-54 to Lys-65, Ser-78 to Lys-93, Gly-146 to Pro-163.			H0587: 1, S0010: 1, H0581: 1, H0421: 1, H0687: 1, H0615: 1, H0622: 1, S0036: 1, S0386: 1, H0494: 1, S0210: 1, L0598: 1, L0794: 1, L0803: 1, L0775: 1, L0792: 1, L0663: 1, L0664: 1, H0520: 1, H0547: 1, S0380: 1, S3014: 1, L0748: 1, L0756: 1, L0755: 1, L0757: 1, L0759: 1, H0343: 1, H0668: 1 and S0026: 1.			127-143, 33-49
869	HCQCC37	875825	879	144 - 497	2284	Glu-19 to Gln-26, Asn-28 to Asn-33, Met-65 to Asn-71, Val-75 to Thr-87.			AR039: 7, AR104: 5, AR053: 5, AR052: 5, AR089: 4, AR096: 4, AR060: 3, AR033: 3, AR061: 1, AR055: 0 S0356: 2, L0747: 2, L0758: 2, H0341: 1, H0125: 1, H0581: 1, H0052: 1, S0003: 1, L0373: 1, L0662: 1, L0658: 1, H0547: 1, H0519: 1, L0777: 1 and L0604: 1.			86-102



870	HFXKZ44	875911	880	13 - 528	2285	Ser-67 to Tyr-93, Thr-109 to Arg-116.	H0586: 1, H0596: 1, S0250: 1, S0152: 1, H0521: 1 and L0758: 1. AR104: 15, AR061: 14, AR055: 13, AR033: 11, AR052: 11, AR089: 11, AR060: 10, AR096: 7, AR053: 7, AR039: 5 L0731: 5, L0758: 5, H0620: 3, L0766: 3, S0360: 2, S0002: 2, L0809: 2, L0791: 2, L0748: 2, L0439: 2, L0747: 2, L0601: 2, H0556: 1, S0282: 1, H0125: 1, S0408: 1, H0549: 1, H0550: 1, S0222: 1, H0438: 1, H0592: 1, T0114: 1, H0581: 1, H0596: 1, S6028: 1, H0622: 1, H0135: 1, H0087: 1, H0059: 1, H0529: 1, L0769: 1, L0761: 1, L0372: 1, L0646: 1, L0804: 1, L0774: 1, L0776: 1, L0783: 1, L0543: 1, H0670: 1, H0555: 1, S3012: 1, L0757: 1, S0260: 1, L0596: 1 and L0361: 1.				1-24, 37- 60
871	HWAAD1 5	875938	881	79 - 507	2286		AR039: 17, AR055: 13, AR033: 10, AR060: 10.			66-97, 101-131.	

872	HDABX38	875997	882	172 - 975	2287	Glu-27 to Ser-34, Arg-106 to Asn-122, Arg-154 to Lys-163, Arg-214 to Tyr-225.	AR089: 10, AR104: 9, AR096: 9, AR052: 9, AR053: 8, AR061: 8 H0581: 2, L0766: 2, L0755: 2, S0360: 1, L0055: 1, L0598: 1, L0770: 1, L0772: 1, L0779: 1 and L0752: 1.				20-43, 1- 17
							AR039: 17, AR053: 16, AR033: 12, AR052: 12, AR104: 12, AR096: 11, AR060: 10, AR055: 10, AR089: 9, AR061: 4 S0354: 1, H0497: 1, H0263: 1, H0551: 1, L0475: 1, H0547: 1, H0521: 1 and H0631: 1.				129-151, 185-201
873	HETJZ14	876053	883	2790 - 1531	2288	Tyr-57 to Gly-66, Asp-91 to Lys-101, Val-131 to Gly-137, Asn-146 to His-152, Phe-200 to Arg-209, Leu-217 to Cys-222, Pro-326 to Asn-332, Lys-360 to Phe-375, Val-397 to Ile-405.	AR055: 6, AR061: 6, AR033: 5, AR060: 4, AR052: 4, AR053: 3, AR089: 3, AR096: 3, AR104: 3, AR039: 2 L0766: 14, H0423: 9, L0659: 8, H0170: 6, H0657: 6, H0624: 4, S0420: 4, H0486: 4, H0013: 4, L0794: 4, L0666: 4, S0328: 4, H0521: 4, L0754: 4, L0731: 4, S0418: 3, S0356: 3,				303-322, 229-245, 154-170, 248-264

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874	HFCFB73	876111	884	217 - 1341	2289	Ala-17 to Asp-23, Pro-45 to Thr-53, Pro-55 to Glu-63, Tyr-103 to Pro-117, Glu-198 to Tyr-209, Arg-257 to Thr-266, Pro-322 to Gly-328.	L0805: 1, L0655: 1, L0656: 1, L0647: 1, L0367: 1, L0663: 1, L0664: 1, L0665: 1, H0144: 1, H0547: 1, H0519: 1, H0690: 1, H0435: 1, H0659: 1, H0660: 1, H0648: 1, H0518: 1, S0152: 1, H0555: 1, H0436: 1, L0747: 1, L0749: 1, L0780: 1, H0668: 1, S0242: 1, S0276: 1, H0543: 1, S0424: 1 and S0452: 1.	L0805: 1, L0655: 1, L0656: 1, L0647: 1, L0367: 1, L0663: 1, L0664: 1, L0665: 1, H0144: 1, H0547: 1, H0519: 1, H0690: 1, H0435: 1, H0659: 1, H0660: 1, H0648: 1, H0518: 1, S0152: 1, H0555: 1, H0436: 1, L0747: 1, L0749: 1, L0780: 1, H0668: 1, S0242: 1, S0276: 1, H0543: 1, S0424: 1 and S0452: 1.	L0805: 1, L0655: 1, L0656: 1, L0647: 1, L0367: 1, L0663: 1, L0664: 1, L0665: 1, H0144: 1, H0547: 1, H0519: 1, H0690: 1, H0435: 1, H0659: 1, H0660: 1, H0648: 1, H0518: 1, S0152: 1, H0555: 1, H0436: 1, L0747: 1, L0749: 1, L0780: 1, H0668: 1, S0242: 1, S0276: 1, H0543: 1, S0424: 1 and S0452: 1.	233-256, 136-160, 166-192, 337-355, 302-318, 211-227, 270-286
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875	H2LAJ32	876142	885	208 - 561	2290			H0648: 1, S0013: 1, H0696: 1, S0044: 1, S0190: 1, H0555: 1, H0631: 1, S3012: 1, S0027: 1, L0744: 1, L0750: 1, L0779: 1, L0752: 1, S0434: 1, S0436: 1, L0588: 1, L0591: 1, L0592: 1, L0593: 1, L0361: 1, L0601: 1, H0665: 1 and S0456: 1.				34-65
876	HTPIQ89	876198	886	219 - 575	2291	Met-1 to Thr-12.		AR052: 5, AR055: 5, AR053: 4, AR060: 4, AR039: 3, AR033: 3, AR096: 3, AR061: 3, AR089: 3, AR104: 2, T0115: 1, H0046: 1, H0457: 1 and L0520: 1.				76-95, 46-64
877	HTDAI12	876209	887	298 - 870	2292	Gly-100 to Arg-106, Ser-111 to Cys-116.		AR055: 12, AR089: 7, AR033: 7, AR060: 6, AR052: 6, AR061: 6, AR053: 4, AR104: 4, AR039: 4, AR096: 2, H0039: 1, H0622: 1, L0764: 1, L0659: 1, L0809: 1, S0406: 1 and H0506: 1.				129-156

878	HWLGV14	876226	888	169 - 978	2293	Arg-16 to Thr-21.	AR055: 2, AR061: 1 S0360: 3, S0354: 2, H0637: 2, S0298: 1, H0427: 1, H0477: 1 and H0445: 1.				198-229, 63-92, 126-151, 97-115
879	HCQBI31	876372	889	58 - 408	2294	Lys-11 to Glu-16.	AR061: 45, AR060: 10, AR096: 4, AR039: 4, AR089: 3, AR033: 3, AR055: 2, AR052: 2, AR104: 1, AR053: 0 S0354: 1 and L0748: 1. AR039: 19, AR053: 16, AR055: 15, AR033: 14, AR089: 13, AR096: 11, AR060: 11, AR052: 11, AR104: 10, AR061: 7 L0794: 4, H0263: 1, H0327: 1, L0763: 1, L0666: 1, L0663: 1, L0438: 1, S0378: 1, L0747: 1 and L0759: 1.				71-87, 18- 34, 93-109
880	HE9RM22	876418	890	322 - 660	2295		AR061: 3, AR055: 3, AR060: 2, AR033: 2, AR104: 2, AR096: 1, AR053: 1, AR089: 1, AR052: 0, AR039: 0 L0748: 5, L0438: 3, S0360: 2, L0792: 2, L0439: 2, L0749: 2, L0759: 2, S0356: 1, H0333: 1, H0009:				41-66, 13- 29

881	HMUBP81	876452	891	1078 - 200	2296	Met-1 to Arg-10, Val-22 to Ser-27, Asp-34 to Thr-39, Glu-115 to Arg-121, Leu-162 to Ser-169, Ile-266 to Ser-271.	1, H0100: 1, L0803: 1, L0651: 1, L0776: 1, L0512: 1, H0144: 1 and L0352: 1. AR039: 34, AR033: 17, AR053: 15, AR104: 13, AR096: 13, AR089: 13, AR052: 11, AR055: 10, AR060: 10, AR061: 6 L0777: 10, L0769: 4, L0764: 3, L0740: 3, S0360: 2, T0042: 2, L0766: 2, L0775: 2, L0748: 2, L0779: 2, L0603: 2, H0650: 1, H0341: 1, S0358: 1, S0376: 1, L0021: 1, H0263: 1, H0046: 1, H0412: 1, H0529: 1, L0662: 1, L0767: 1, L0774: 1, L0776: 1, L0665: 1, H0648: 1, S0330: 1, L0755: 1, L0759: 1 and H0667: 1.	225-252, 50-66	
882	HFIUG54	876475	892	681 - 980	2297		AR039: 11, AR104: 8, AR096: 6, AR053: 5, AR055: 5, AR052: 4, AR089: 4, AR033: 3, AR060: 3, AR061: 2 L0803: 8, L0756: 4, L0659: 3, L0731: 3, S0418: 2, H0156: 2, H0551: 2,	64-84, 18- 37	



883	HOB AE30	876533	893	388 - 699	2298	Lys-25 to Lys-31, His-36 to Gln-42, Gln-84 to Cys-90.	L0369: 2, L0662: 2, L0766: 2, L0517: 2, L0665: 2, H0670: 2, S0380: 2, H0521: 2, L0740: 2, S0356: 1, S0376: 1, S0444: 1, S0360: 1, S0408: 1, H0329: 1, L0717: 1, H0497: 1, L0021: 1, H0004: 1, H0052: 1, H0044: 1, H0687: 1, T0006: 1, H0553: 1, H0674: 1, H0413: 1, H0633: 1, L0763: 1, L0770: 1, L0638: 1, L0667: 1, L0772: 1, L0764: 1, L0773: 1, L0794: 1, L0804: 1, L0774: 1, L0775: 1, L0653: 1, L0527: 1, L0518: 1, L0809: 1, L0438: 1, S0330: 1, H0696: 1, L0744: 1, L0748: 1, L0779: 1, L0777: 1, L0752: 1, L0757: 1, H0343: 1, S0434: 1, L0590: 1, S0011: 1, H0667: 1, S0194: 1, S0196: 1 and H0423: 1. AR096: 2, AR089: 1, AR053: 1, AR033: 1, AR060: 1, AR061: 1, AR039: 0, AR055: 0 L0754: 8, L0803: 6, L0748: 4, L0766: 3, S0376:					62-85, 1- 23
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884	HDABK73	876546	894	508 - 2508	2299	Glu-6 to Thr-20, Glu-63 to Met-74, Gln-79 to Thr-87, Ser-90 to Glu-105, Pro-113 to Gln-136, Phe-232 to Lys-249.	2, S0444: 2, S0360: 2, H0529: 2, L0663: 2, H0445: 2, L0603: 2, H0543: 2, H0657: 1, H0638: 1, S0420: 1, H0580: 1, H0393: 1, S0300: 1, L0717: 1, H0431: 1, H0643: 1, H0156: 1, H0581: 1, H0251: 1, H0014: 1, S0051: 1, S0003: 1, H0644: 1, H0090: 1, H0040: 1, S0472: 1, S0426: 1, L0598: 1, L0800: 1, L0641: 1, L0771: 1, L0521: 1, L0662: 1, L0768: 1, L0775: 1, L0805: 1, L0606: 1, L0657: 1, L0789: 1, L0665: 1, H0547: 1, H0519: 1, S0122: 1, H0658: 1, H0672: 1, H0539: 1, S0378: 1, H0521: 1, L0439: 1, L0752: 1, L0759: 1 and H0423: 1. AR053: 12, AR052: 9, AR096: 8, AR089: 5, AR039: 4, AR055: 4, AR033: 3, AR060: 3, AR061: 3, AR104: 2 H0497: 1, H0263: 1 and L0601: 1.				144-161, 182-198
885	HEMHA04	876674	895	529 -	2300	Pro-4 to Ser-9.	AR033: 9, AR052: 8, AR033: 9, AR052: 8,			81-97, 11-	

886	HHEOX44	876676	896	151 - 2649	2301	Met-1 to Gln-8, Val-18 to Lys-36, Glu-42 to Thr-49, Pro-51 to Asn-58.	AR096: 8, AR089: 7, AR060: 7, AR104: 7, AR055: 6, AR039: 6, AR053: 5, AR061: 4 L0777: 9, L0748: 8, L0770: 5, L0789: 2, L0747: 2, L0755: 2, L0758: 2, H0171: 1, H0650: 1, S0376: 1, H0580: 1, S0046: 1, H0411: 1, H0549: 1, H0587: 1, H0486: 1, H0013: 1, H0318: 1, H0581: 1, L0471: 1, T0006: 1, H0031: 1, H0135: 1, H0040: 1, H0560: 1, H0561: 1, H0529: 1, L0769: 1, L0662: 1, L0803: 1, L0774: 1, H0670: 1, S0037: 1, S0027: 1, L0439: 1, L0740: 1, L0750: 1, L0759: 1, S0026: 1, S0276: 1 and H0543: 1.				27
							AR104: 7, AR039: 6, AR096: 6, AR033: 5, AR052: 5, AR060: 4, AR089: 4, AR061: 3, AR053: 3, AR055: 2 L0779: 6, L0794: 5, L0439: 4, L0777: 4, L0758: 4, H0051: 2, H0040: 2, L0803: 2, L0775: 2, L0659:				727-748, 695-715, 222-240, 543-560, 676-692, 334-350, 521-537, 417-433, 655-671,

									2, L0663: 2, L0759: 2, L0608: 2, H0543: 2, H0556: 1, S0218: 1, H0657: 1, H0341: 1, S0444: 1, S0468: 1, H0013: 1, H0635: 1, H0599: 1, H0098: 1, H0318: 1, H0235: 1, T0110: 1, H0563: 1, H0292: 1, H0606: 1, H0056: 1, H0623: 1, S0440: 1, S0002: 1, L0644: 1, L0764: 1, L0773: 1, L0521: 1, L0662: 1, L0768: 1, L0766: 1, L0805: 1, L0528: 1, L0790: 1, L0792: 1, L0666: 1, L0664: 1, L0665: 1, L0438: 1, H0547: 1, S0126: 1, H0659: 1, H0670: 1, H0672: 1, H0521: 1, L0740: 1, L0747: 1, L0752: 1, L0596: 1, L0485: 1, L0595: 1, H0136: 1, H0542: 1 and H0423: 1.					89-105, 256-272
887	HWBBS84	876726	897	242 - 814	2302	Tyr-14 to Gly-19, Lys-26 to Tyr-31, Asp-36 to Asp-41, Leu-68 to Glu-73, Pro-161 to Gly-168.							83-110, 43-59	

888	HWLIP86	876744	898	111 - 608	2303	Thr-91 to Ser-97, Thr-108 to Tyr-119, Gln-142 to Glu-157.	H0040: 1, H0494: 1, H0641: 1, L0662: 1, L0803: 1, S0428: 1, S0328: 1 and L0747: 1. AR039: 6, AR096: 3, AR060: 3, AR052: 3, AR053: 2, AR061: 2, AR104: 2, AR089: 1, AR055: 1, AR033: 1 L0775: 5, L0772: 3, S0358: 2, L0773: 2, S0356: 1, H0052: 1, H0596: 1, H0014: 1 and L0764: 1.				115-143, 72-91, 6- 29
889	HSBAZ37	876799	899	1192 - 671	2304	Arg-45 to Gly-55, Asp-143 to Arg-150.	AR033: 37, AR053: 35, AR039: 33, AR055: 33, AR089: 32, AR052: 32, AR104: 30, AR061: 24, AR060: 20, AR096: 20				84-114, 113-142, 150-172, 55-74, 26- 43, 77-93
890	HOSXA83	877015	900	802 - 395	2305		AR055: 8, AR060: 7, AR052: 7, AR096: 6, AR089: 6, AR053: 5, AR033: 5, AR039: 5, AR104: 5, AR061: 3 S0360: 3, L0758: 2, L0596: 2, L0485: 2, L0362: 2, S0011: 2, S0021: 2, H0656: 1, S0116: 1, S0418: 1, S0045: 1, S0476: 1,				111-133, 22-38

891	HDQHQ51	877101	901	584 - 1168	2306	Asp-3 to Cys-9, Gly-68 to Leu-74, Lys-109 to Asn-132.	H0393: 1, H0566: 1, H0050: 1, H0364: 1, H0040: 1, L0666: 1, H0547: 1, S0126: 1, H0539: 1, L0777: 1, L0752: 1, S0031: 1, S0436: 1, L0591: 1, L0601: 1, S0196: 1 and H0423: 1. AR055: 1, AR089: 1, AR060: 1, AR061: 0, AR096: 0, AR052: 0, AR104: 0, AR039: 0, AR033: 0, AR053: 0 H0521: 3, H0124: 2, H0494: 2, S0040: 1, S0430: 1, H0650: 1, H0656: 1, S0356: 1, S0358: 1, H0645: 1, H0586: 1, H0587: 1, H0590: 1, L0045: 1, H0316: 1, H0598: 1, S0036: 1, H0591: 1, H0641: 1, L0766: 1, H0701: 1, H0689: 1, H0672: 1, L0439: 1 and L0596: 1.				10-40, 75- 104, 48- 64, 135- 151, 167- 183
892	HWAAB46	877162	902	30 - 875	2307	Met-1 to Gly-8, Asn-38 to Leu-44, Arg-46 to Gly-51, Gln-120 to Pro-128, Met-168 to Pro-174.	AR096: 11, AR033: 11, AR104: 10, AR052: 9, AR053: 8, AR060: 8, AR089: 8, AR039: 6, AR055: 2, AR061: 2 L0766: 6, L0748: 5,				181-198, 142-158, 68-84, 206-222, 96-112

893	HOGDT09	877219	903	2422 - 854	2308	Lys-60 to Ala-79, Thr-88 to Lys-101, Leu-106 to Glu-116.	L0740: 5, L0759: 4, L0749: 3, H0486: 2, L0471: 2, H0040: 2, L0803: 2, L0775: 2, L0517: 2, L0602: 2, L0747: 2, L0731: 2, S0342: 1, H0341: 1, S0354: 1, H0635: 1, H0581: 1, L0738: 1, H0046: 1, T0003: 1, S0388: 1, S6028: 1, H0622: 1, T0067: 1, H0413: 1, H0494: 1, S0142: 1, H0529: 1, L0520: 1, L0371: 1, L0761: 1, L0646: 1, L0800: 1, L0521: 1, L0794: 1, L0774: 1, L0657: 1, L0809: 1, L0666: 1, L0663: 1, L0665: 1, H0547: 1, H0670: 1, H0666: 1, H0648: 1, H0521: 1, S3014: 1, L0754: 1, L0745: 1, L0594: 1, S0192: 1, S0276: 1 and H0506: 1.	AR052: 8, AR053: 5, AR096: 5, AR039: 3, AR060: 3, AR089: 3, AR033: 3, AR104: 3, AR055: 1, AR061: 1 L0766: 5, L0777: 5, L0803: 3, H0422: 3, H0624: 2, S0003: 2, S0214: 2,	41-57, 152-168	
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894	HTEGT79	877252	904	62 - 1078	2309	Met-1 to Lys-23, Val-75 to Ser-81, Ser-126 to Trp-132, Leu-165 to Ala-178.	L0775: 2, L0527: 2, L0659: 2, L0779: 2, L0755: 2, L0604: 2, H0170: 1, H0171: 1, H0656: 1, S0376: 1, S0046: 1, H0486: 1, H0263: 1, H0014: 1, H0687: 1, H0031: 1, H0090: 1, H0634: 1, H0494: 1, H0561: 1, H0641: 1, L0770: 1, L0761: 1, L0800: 1, L0643: 1, L0773: 1, L0768: 1, L0794: 1, L0774: 1, L0776: 1, L0606: 1, L0537: 1, L0526: 1, S0006: 1, H0682: 1, H0435: 1, S0152: 1, H0521: 1, S0028: 1, L0743: 1, L0750: 1, L0758: 1, S0194: 1, H0542: 1 and H0506: 1.	L0775: 2, L0527: 2, L0659: 2, L0779: 2, L0755: 2, L0604: 2, H0170: 1, H0171: 1, H0656: 1, S0376: 1, S0046: 1, H0486: 1, H0263: 1, H0014: 1, H0687: 1, H0031: 1, H0090: 1, H0634: 1, H0494: 1, H0561: 1, H0641: 1, L0770: 1, L0761: 1, L0800: 1, L0643: 1, L0773: 1, L0768: 1, L0794: 1, L0774: 1, L0776: 1, L0606: 1, L0537: 1, L0526: 1, S0006: 1, H0682: 1, H0435: 1, S0152: 1, H0521: 1, S0028: 1, L0743: 1, L0750: 1, L0758: 1, S0194: 1, H0542: 1 and H0506: 1.	41-60, 319-335, 296-312
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895	HOEJS41	877267	905	10 - 591	2310	Gly-34 to Leu-41, Ala-54 to Lys-60,	AR096: 5, AR033: 3, AR039: 2, AR089: 1,	L0768: 2, L0649: 2, L0804: 2, L0775: 2, L0657: 2, L0791: 2, L0664: 2, L0438: 2, H0520: 2, H0659: 2, S0152: 2, H0522: 2, L0747: 2, L0750: 2, L0756: 2, L0755: 2, L0757: 2, H0543: 2, S0040: 1, H0671: 1, H0661: 1, H0402: 1, H0638: 1, S0418: 1, S0360: 1, S0408: 1, H0333: 1, H0486: 1, H0156: 1, T0048: 1, H0597: 1, H0546: 1, H0014: 1, H0373: 1, H0375: 1, H0644: 1, H0316: 1, H0038: 1, L0060: 1, H0551: 1, H0512: 1, L0800: 1, L0643: 1, L0521: 1, L0651: 1, L0523: 1, L0654: 1, L0527: 1, L0526: 1, L0783: 1, L0528: 1, L0663: 1, H0519: 1, S0126: 1, H0365: 1, H0670: 1, S0378: 1, H0696: 1, S0032: 1, L0745: 1, L0779: 1, L0731: 1, L0759: 1, S0031: 1, L0597: 1, H0423: 1, S0384: 1 and H0506: 1.					72-93, 128-144,
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						Phe-100 to Ala-111, Ser-145 to Asn-154.	AR053: 1, AR061: 1, AR055: 1, AR060: 1, AR104: 0, AR052: 0 L0751: 5, H0556: 4, L0741: 4, L0779: 3, L0777: 3, H0617: 2, L0789: 2, S0126: 2, H0265: 1, S0360: 1, S0045: 1, S0278: 1, H0545: 1, H0009: 1, H0620: 1, H0510: 1, S0214: 1, H0038: 1, H0412: 1, H0413: 1, H0059: 1, H0494: 1, H0641: 1, L0770: 1, L0772: 1, L0800: 1, L0764: 1, L0794: 1, L0804: 1, L0659: 1, L0518: 1, L0809: 1, H0436: 1 and L0759: 1.				155-171, 173-189
896	HBXDI92	877294	906	184 - 918	2311		AR033: 2, AR096: 2, AR039: 1, AR089: 1, AR061: 1, AR060: 1, AR055: 0, AR052: 0, AR053: 0, AR104: 0 H0551: 5, H0521: 4, S0007: 3, H0090: 3, S0038: 3, L0519: 3, S0126: 3, S0027: 3, L0439: 3, S0212: 2, S0282: 2, H0550: 2, H0492: 2, H0373: 2, H0553: 2, S0036: 2, L0565: 2, H0522: 2, L0599: 2, L0366:				221-241, 72-88

897	HHFMH12	877387	907	299 - 2161	2312	Gly-3 to Val-12, Gln-24 to Ile-30, Asp-44 to Ala-51, Lys-57 to Arg-62, Thr-114 to Cys-121, Arg-157 to Tyr-162, Ser-166 to Asp-175,	2, H0542: 2, S6024: 1, S0116: 1, H0305: 1, S0356: 1, H0580: 1, S0278: 1, H0437: 1, S6014: 1, H0013: 1, H0575: 1, S0010: 1, S0665: 1, S0346: 1, S0474: 1, H0581: 1, H0052: 1, L0471: 1, H0014: 1, H0051: 1, S0003: 1, H0644: 1, L0142: 1, S0364: 1, H0591: 1, H0038: 1, H0616: 1, H0488: 1, H0494: 1, H0560: 1, S0150: 1, H0529: 1, L0662: 1, L0794: 1, L0804: 1, L0789: 1, S0374: 1, L0438: 1, H0520: 1, H0547: 1, H0519: 1, H0593: 1, L0602: 1, H0518: 1, S0152: 1, L0612: 1, S0390: 1, S0028: 1, S0032: 1, L0759: 1, S0260: 1, S0308: 1, L0589: 1, L0595: 1, H0653: 1, H0667: 1 and S0194: 1, AR055: 5, AR096: 3, AR060: 3, AR033: 2, AR061: 2, AR052: 2, AR089: 2, AR053: 1, AR104: 1, AR039: 1 L0601: 9, L0769: 8, L0770: 6, L0659: 6, S0356:					123-154, 77-96, 240-256
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898	HDPFP36	877396	908	388 - 804	2313			1, L0764: 1, L0662: 1, L0363: 1, L0794: 1, L4500: 1, L0803: 1, L0650: 1, L0805: 1, L0653: 1, L0654: 1, L0655: 1, L0807: 1, L0658: 1, L0783: 1, L0382: 1, L0789: 1, L0793: 1, L0663: 1, H0691: 1, H0693: 1, H0520: 1, H0435: 1, H0704: 1, S0044: 1, S3012: 1, S0027: 1, L0747: 1, L0779: 1, L0777: 1, L0780: 1, L0753: 1, L0757: 1, L0758: 1, L0588: 1, L0366: 1, H0665: 1, S0242: 1, S0194: 1, H0543: 1 and H0008: 1.				123-139, 105-121, 3-19
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899	HDPWZ46	877573	909	2684 -	2314	Asp-114 to Val-130,	2, L0471: 2, S0250: 2, H0622: 2, S0306: 2, L0763: 2, L0662: 2, L0809: 2, H0547: 2, H0521: 2, L0754: 2, L0756: 2, L0752: 2, L0590: 2, S0192: 2, H0543: 2, H0556: 1, H0686: 1, S0040: 1, S0218: 1, H0656: 1, H0662: 1, S0358: 1, S0360: 1, S0007: 1, S0046: 1, H0261: 1, H0013: 1, H0635: 1, H0581: 1, H0052: 1, H0544: 1, H0546: 1, H0510: 1, H0267: 1, H0284: 1, S0022: 1, H0328: 1, H0615: 1, H0428: 1, H0031: 1, H0090: 1, H0616: 1, H0623: 1, L0564: 1, T0042: 1, H0494: 1, S0144: 1, S0210: 1, L0598: 1, L0369: 1, L0770: 1, L0761: 1, L0764: 1, L0768: 1, L0804: 1, L0775: 1, L0806: 1, L0657: 1, L0513: 1, L0541: 1, L0787: 1, L0788: 1, L0663: 1, L0664: 1, H0144: 1, S3014: 1, L0744: 1, L0750: 1, L0779: 1 and L0731: 1.					337-363,
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900	HFPBS73	878090	910	171 - 983	2315	Ala-8 to Asn-15, Asp-142 to Gly-147, Thr-212 to Val-218.		1, H0290: 1, H0688: 1, H0622: 1, H0096: 1, H0030: 1, H0617: 1, H0673: 1, H0087: 1, H0100: 1, H0641: 1, S0422: 1, L0598: 1, L0762: 1, L0796: 1, L0800: 1, L0642: 1, L0643: 1, L0645: 1, L0773: 1, L0662: 1, L0803: 1, L0774: 1, L0775: 1, L0787: 1, H0144: 1, L0438: 1, H0519: 1, H0659: 1, S0378: 1, H0521: 1, H0436: 1, S0028: 1, L0754: 1, L0779: 1, L0780: 1, L0755: 1, L0731: 1, L0757: 1, S0260: 1, H0216: 1, S0192: 1 and H0712: 1.				12-41, 41- 75, 226- 242, 64-80
901	HBBBE08	878159	911	593 - 925	2316		Ala-8 to Asn-15, Asp-142 to Gly-147, Thr-212 to Val-218.	AR055: 7, AR033: 6, AR061: 4, AR060: 4, AR104: 3, AR089: 3, AR096: 3, AR053: 3, AR052: 2, AR039: 1 H0254: 2, S0045: 2, S0028: 2, H0255: 1, S0046: 1, S0222: 1, L0477: 1, H0042: 1, H0617: 1, S0126: 1, S3012: 1 and S0031: 1.				42-61



902	HNFB64	878172	912	623 - 1813	2317	Arg-40 to Thr-46, Phe-92 to Gly-101,	AR061: 1, AR039: 0, AR055: 0, AR104: 0, AR052: 0 L0756: 6, L0438: 5, H0052: 4, L0766: 4, L0439: 4, H0550: 3, L0774: 3, L0805: 3, H0580: 2, S0222: 2, H0486: 2, H0013: 2, H0457: 2, H0620: 2, L0662: 2, L0776: 2, H0689: 2, L0744: 2, L0740: 2, L0747: 2, H0149: 1, H0265: 1, H0657: 1, S0001: 1, S0356: 1, S0442: 1, S0360: 1, H0208: 1, H0351: 1, H0411: 1, H0369: 1, L0444: 1, H0249: 1, L0623: 1, H0156: 1, T0082: 1, S0010: 1, H0374: 1, H0009: 1, L0163: 1, H0201: 1, T0010: 1, H0674: 1, S0366: 1, S0036: 1, H0059: 1, S0038: 1, L0375: 1, L0517: 1, L0783: 1, L0809: 1, L0789: 1, L0663: 1, H0651: 1, L0748: 1, L0745: 1, L0779: 1, L0752: 1, L0731: 1 and S0434: 1.					7-38, 367- 389, 255-
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903	HBIMN78	878206	913	1287 - 46	2318	Pro-12 to His-17, Arg-53 to Ala-66,	AR104: 3, AR096: 2, AR052: 2, AR033: 2,			159-181, 341-360

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904	HHEKH05	878208	914	16 - 1407	2319	Lys-24 to Arg-30, Glu-76 to Arg-82, Ala-246 to Glu-256, Thr-261 to Gly-266, Thr-284 to Glu-290, Gly-323 to Tyr-329, Phe-427 to Lys-433, Asn-435 to Trp-453.	H0266: 1, L0194: 1, L0055: 1, H0708: 1, S0366: 1, S0036: 1, H0264: 1, H0509: 1, S0344: 1, H0538: 1, S0002: 1, S0426: 1, L0763: 1, L0770: 1, L0637: 1, L5575: 1, L0642: 1, L0773: 1, L0648: 1, L0649: 1, L0533: 1, L0805: 1, L0530: 1, L0647: 1, L0790: 1, S0428: 1, S0053: 1, H0701: 1, H0723: 1, S0310: 1, H0547: 1, H0593: 1, H0684: 1, H0658: 1, H0670: 1, H0518: 1, H0521: 1, H0522: 1, H0696: 1, H0555: 1, H0627: 1, H0631: 1, S012: 1, S0027: 1, L0741: 1, L0747: 1, L0750: 1, L0786: 1, L0777: 1, L0755: 1, H0665: 1, S0194: 1, H0423: 1 and H0506: 1.				1-23, 136- 154, 52- 68, 375- 391, 99- 115
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905	HHAUW8 1	878215	915	167 - 1189	2320	Arg-68 to Thr-75, Arg-91 to Val-104, Pro-203 to Pro-221, Leu-229 to Arg-252, Pro-282 to Gly-295.	L0731: 1, L0608: 1, H0136: 1, H0542: 1, H0543: 1 and H0423: 1. AR033: 7, AR104: 6, AR053: 5, AR052: 5, AR039: 4, AR096: 4, AR055: 4, AR060: 3, AR089: 3, AR061: 3 L0769: 5, L0766: 5, L0439: 5, S0358: 4, L0794: 4, L0438: 4, L0777: 4, H0618: 3, H0494: 3, H0561: 3, L0809: 3, H0638: 2, S0418: 2, S0420: 2, H0370: 2, S0049: 2, H0052: 2, H0050: 2, H0012: 2, H0059: 2, S0440: 2, S0002: 2, L0761: 2, L0803: 2, L0805: 2, L0665: 2, H0547: 2, L0742: 2, L0744: 2, L0748: 2, L0779: 2, L0758: 2, L0759: 2, H0556: 1, H0656: 1, H0255: 1, H0458: 1, S0444: 1, H0208: 1, H0393: 1, H0351: 1, H0261: 1, S0220: 1, H0333: 1, H0632: 1, H0581: 1, H0309: 1, H0046: 1, H0150: 1, L0116: 1, H0620: 1, L0163: 1, H0083: 1, H0615: 1, T0023:	9q33-q34.1	103000, 114350, 120900, 131195, 146150, 185000, 189980, 223900, 253800, 253800, 268900, 600184, 602575, 602575	176-193, 142-158
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906	HAUBB12	878260	916	144 - 749	2321	Thr-3 to Gln-9.	1, H0424: 1, H0213: 1, H0617: 1, H0606: 1, H0673: 1, H0124: 1, H0135: 1, H0038: 1, L0351: 1, S0150: 1, S0344: 1, L0763: 1, L0796: 1, L0800: 1, L0768: 1, L0804: 1, L0774: 1, L0806: 1, L0629: 1, L0658: 1, L0545: 1, H0682: 1, H0658: 1, H0627: 1, L0741: 1, L0750: 1, L0752: 1, L0731: 1, L0757: 1, H0445: 1, L0589: 1, H0667: 1 and H0352: 1.					43-59
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907	HFPHS77	878291	917	358 - 771	2322	Met-1 to Gln-6, Ile-32 to Cys-40, Trp-89 to Arg-97.	L5623: 1, L0791: 1, L0793: 1, L0664: 1, H0689: 1, H0435: 1, S0406: 1 and L0592: 1. AR033: 10, AR055: 9, AR096: 7, AR089: 7, AR060: 7, AR104: 6, AR052: 5, AR053: 5, AR061: 5, AR039: 2 L0779: 4, H0671: 2, S0356: 2, S0222: 2, H0052: 2, L0754: 2, L0756: 2, T0002: 1, S0358: 1, H0574: 1, T0003: 1, S0051: 1, L0598: 1, L0794: 1, L0766: 1, L0803: 1, L0804: 1, L0775: 1, L0659: 1, L0789: 1, L0663: 1, H0144: 1, H0670: 1, H0651: 1, L0759: 1, L0362: 1 and S0026: 1.				39-63, 6- 28
908	HBGQN46	878306	918	216 - 683	2323	Ala-15 to Tyr-20.	AR096: 1, AR033: 1, AR089: 1, AR060: 1, AR052: 0, AR061: 0, AR039: 0, AR053: 0, AR104: 0, AR055: 0 H0617: 2, L0794: 2, L0766: 2, L0806: 2, L0777: 2, H0587: 1, L0767: 1, L0375: 1, L0790: 1, L0792:				59-92



909	HTAFG29	878308	919	1333 - 1707	2324	Pro-100 to Lys-107.	1, L0743: 1, L0779: 1 and L0780: 1. AR061: 2, AR039: 1, AR060: 1, AR089: 0, AR104: 0, AR055: 0 L0804: 5, L0794: 4, S0046: 3, L0769: 3, S0222: 2, H0604: 2, H0553: 2, L0654: 2, L0777: 2, L0780: 2, L0731: 2, L0599: 2, H0265: 1, H0556: 1, T0049: 1, S0444: 1, S0360: 1, L0717: 1, T0039: 1, H0013: 1, H0069: 1, H0635: 1, H0036: 1, H0085: 1, H0271: 1, H0188: 1, H0424: 1, H0628: 1, H0674: 1, H0551: 1, H0494: 1, L0373: 1, L0641: 1, L0764: 1, L0768: 1, L0523: 1, L0806: 1, L0790: 1, L0665: 1, S0374: 1, H0684: 1, H0555: 1, S0390: 1, L0748: 1, L0751: 1, L0747: 1, S0276: 1 and H0422: 1.				70-87, 37- 53
910	HDPCT51	878310	920	315 - 1847	2325	Gly-83 to Ser-92, Tyr-100 to Phe-113, Asp-127 to Asp-138, Asp-194 to Gly-200,	AR039: 33, AR033: 18, AR104: 17, AR053: 15, AR096: 15, AR089: 14, AR055: 13, AR052: 11,				426-452, 226-251, 354-379, 315-334,

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911	HMACZ08	878313	921	560 - 1174	2326	Phe-16 to Asn-23, Arg-166 to Ser-183, Met-188 to Glu-193.	AR053: 115, AR052: 80, AR096: 71, AR039: 59, AR060: 41, AR089: 40, AR033: 37, AR104: 35, AR055: 29, AR061: 17 S0007: 10, L0748: 7, H0013: 3, S0010: 3, L0771: 3, L0438: 3, L0439: 3, L0591: 3, S0040: 2, S0222: 2, H0156: 2, H0083: 2, H0510: 2, S0003: 2, H0032: 2, L0519: 2, H0521: 2, S0260: 2, L0596: 2, S0276: 2, H0265: 1, H0556: 1, S0134: 1, H0675: 1, S0346: 1, H0196: 1, H0309: 1,	Xp22.1	300075, 300077, 301200, 302350, 306000, 306000, 306100, 307800, 309510, 311770, 312040, 312170, 312700, 313400	108-140, 36-58, 64- 85, 145- 161, 81-97

912	HOHCA01	878348	922	169 - 1824	2327	Leu-2 to Leu-7, Leu-14 to Arg-46, Pro-73 to Arg-80, Ile-100 to Ile-105, Lys-113 to Val-126.	H0327: 1, H0530: 1, H0051: 1, H0266: 1, S0314: 1, S0022: 1, H0031: 1, H0553: 1, H0212: 1, H0038: 1, H0380: 1, H0264: 1, H0100: 1, H0509: 1, S0144: 1, L0763: 1, L0372: 1, L0374: 1, L0803: 1, L0775: 1, L0776: 1, S0216: 1, S0148: 1, H0670: 1, H0539: 1, H0518: 1, H0696: 1, S0146: 1, S0406: 1, S0028: 1, L0749: 1, L0779: 1, S0026: 1, S0192: 1 and S0242: 1.					45-74, 395-413, 174-190, 336-352, 275-291, 466-482
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913	HTPEF72	878349	923	1399 - 1815	2328	Pro-4 to Pro-11, Pro-37 to Pro-50.	AR089: 17, AR053: 14, AR055: 14, AR052: 14, AR096: 12, AR104: 9, AR033: 8, AR060: 7, AR061: 6, AR039: 5 L0805: 11, L0777: 5, L0776: 4, L0438: 4, H0156: 2, H0318: 2, H0424: 2, S0464: 2, L0659: 2, S0434: 2, S0116: 1, H0661: 1, H0664: 1, S0442: 1, S0360: 1, H0733: 1, S0045: 1, S0046: 1, H0393: 1, H0587: 1, H0042: 1, H0618: 1, H0204: 1, H0565: 1, H0039: 1, H0165: 1, H0090: 1, H0038: 1, T0067: 1, H0647: 1, L0520: 1, L0646: 1, L0662: 1, L0651: 1, L0806: 1, L0658: 1, L5622: 1, L0787: 1, L0791: 1, L0792: 1, L0663: 1, L0664: 1, L0665: 1, H0658: 1, H0660: 1, S0380: 1, L0439: 1, L0747: 1, L0749: 1, L0753: 1, S0260: 1, S0436: 1 and L0584: 1.			74-91, 106-122
914	HDQFU07	878365	924	257 - 1156	2329	Lys-29 to Val-34, Cys-94 to Asp-99, Ser-102 to Val-107.	AR039: 25, AR096: 7, AR060: 5, AR033: 5, AR053: 4, AR052: 3,		1-27, 166- 183, 256- 272, 113-	

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915	HETBV52	878370	925	25 - 450	2330	Gly-11 to Asp-17, Gly-23 to Asp-41, Met-108 to Gln-116.	1, S0440: 1, H0654: 1, H0652: 1, S0344: 1, H0529: 1, H0026: 1, L0371: 1, L0372: 1, L0764: 1, L0521: 1, L0768: 1, L0649: 1, L0652: 1, L0653: 1, L0809: 1, L0367: 1, L0663: 1, L0665: 1, S0428: 1, H0699: 1, H0547: 1, H0670: 1, H0660: 1, S0330: 1, S0378: 1, H0518: 1, H0521: 1, H0522: 1, S0028: 1, L0744: 1, L0439: 1, L0751: 1, S0031: 1, S0260: 1, L0581: 1, L0362: 1, H0136: 1, H0506: 1 and H0721: 1.	16q24.1	256850	82-102
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916	HPHAB61	878406	926	35 - 853	2331	Arg-140 to Arg-145.	H0422: 1 and S0424: 1. AR055: 10, AR033: 8, AR060: 7, AR089: 5, AR052: 4, AR061: 4, AR104: 4, AR096: 4, AR053: 3, AR039: 2 L0439: 5, L0740: 4, L0777: 4, L0755: 4, L0794: 2, L0803: 2, L0438: 2, L0602: 2, L0752: 2, L0599: 2, H0583: 1, S0360: 1, L0471: 1, H0510: 1, H0032: 1, H0488: 1, H0413: 1, L0662: 1, L0804: 1, L0775: 1, L0805: 1, L0655: 1, L0809: 1, L0519: 1, S0148: 1, H0547: 1, L0747: 1, L0686: 1 and H0665: 1.				153-173, 248-270, 190-209, 100-121, 61-78, 211-228, 1-17
917	HTJINI73	878407	927	59 - 1090	2332	Ile-37 to Ile-42, Asn-48 to Met-53, Cys-252 to Gly-258, Val-288 to Glu-293.	AR096: 1, AR033: 1, AR053: 1, AR089: 1, AR055: 0, AR060: 0, AR061: 0, AR039: 0, AR052: 0, AR104: 0 L0740: 19, L0748: 14, S0358: 6, L0754: 6, L0759: 5, S0354: 3, H0046: 3, S0344: 3, L0771: 3, L0666: 3, L0747: 3, H0393: 2, L0637: 2, L0775: 2, L0651:				1-17, 323- 341, 130- 146



918	HFCA119	878432	928	564 - 109	2333	Asp-2 to His-10, Pro-136 to Glu-150.	2, L0438: 2, L0439: 2, L0756: 2, L0755: 2, H0170: 1, L0427: 1, S0356: 1, S0360: 1, S0408: 1, H0389: 1, H0549: 1, S0222: 1, H0643: 1, H0331: 1, H0574: 1, H0013: 1, H0156: 1, T0082: 1, S0474: 1, H0194: 1, L0738: 1, H0545: 1, H0150: 1, H0199: 1, H0014: 1, H0355: 1, S6028: 1, H0039: 1, L0455: 1, H0124: 1, H0316: 1, H0488: 1, H0059: 1, S0438: 1, S0144: 1, L0770: 1, L0769: 1, L0764: 1, L0662: 1, L0774: 1, L0805: 1, L0517: 1, L0783: 1, L0664: 1, H0144: 1, H0684: 1, H0672: 1, S0152: 1, H0521: 1, S0404: 1, H0555: 1, L0749: 1, L0786: 1, L0758: 1, H0445: 1, H0707: 1, L0599: 1, H0665: 1 and S0192: 1. AR053: 17, AR055: 14, AR096: 10, AR033: 9, AR060: 8, AR039: 8, AR052: 6, AR089: 6, AR104: 6, AR061: 5 L0747: 5, L0750: 5,					43-70, 76- 107, 103- 128, 22-38
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919	HEOMO40	878455	929	151 - 981	2334	Pro-34 to Pro-40, Pro-160 to Gln-167, Arg-185 to Gly-191, Glu-206 to His-211, Gln-231 to Thr-239.	L0748: 4, L0777: 4, S0344: 3, S0003: 2, L0769: 2, L0768: 2, L0775: 2, L0776: 2, H0659: 2, S0406: 2, L0751: 2, L0758: 2, H0159: 1, H0686: 1, H0294: 1, S0114: 1, H0636: 1, H0489: 1, S0007: 1, S0045: 1, H0619: 1, H0431: 1, L0251: 1, T0039: 1, T0114: 1, H0263: 1, H0327: 1, H0009: 1, H0012: 1, H0083: 1, H0039: 1, H0598: 1, H0038: 1, S0422: 1, L0770: 1, L0764: 1, L0766: 1, L0805: 1, L0512: 1, L0783: 1, L0382: 1, S0052: 1, S0428: 1, S0126: 1, H0648: 1, H0555: 1, L0749: 1, L0779: 1, L0752: 1, L0731: 1, L0757: 1, L0759: 1, H0445: 1, H0667: 1 and H0543: 1. AR033: 3, AR061: 3, AR060: 3, AR096: 2, AR089: 2, AR055: 1, AR052: 1, AR104: 0 H0457: 10, H0617: 6, H0181: 5, L0748: 5, L0783: 3, L0809: 3, L0777: 3, H0484: 2, H0486: 2, H0087:					127-143, 167-183
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920	HGQR89	878462	930	95 - 592	2335	Ser-21 to Gly-27.	2, H0494: 2, L0648: 2, H0521: 2, L0751: 2, L0755: 2, H0265: 1, H0556: 1, H0717: 1, H0657: 1, H0306: 1, H0402: 1, S0408: 1, H0580: 1, H0619: 1, H0549: 1, H0559: 1, H0097: 1, H0390: 1, S0474: 1, H0545: 1, H0355: 1, H0428: 1, H0039: 1, H0033: 1, H0213: 1, H0124: 1, S0366: 1, H0163: 1, H0509: 1, L0763: 1, L0770: 1, L0772: 1, L0774: 1, L0775: 1, L0776: 1, L0438: 1, H0684: 1, S0328: 1, H0539: 1, H0522: 1, L0747: 1, L0731: 1, L0757: 1, H0668: 1 and H0543: 1.					105-144, 27-50, 84-114, 46-62, 146-162
921	HSLHS40	878483	931	121 - 534	2336	Val-131 to Asn-136.	AR104: 1, AR061: 1, AR089: 1, AR060: 0, AR055: 0, AR039: 0, AR033: 0, AR053: 0, AR052: 0, AR096: 0, H0098: 1, H0617: 1, L0598: 1, L0367: 1 and S0260: 1.					31-52, 9-32, 63-95,

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922	HDPFT14	878510	932	84 - 554	2337	Gly-11 to Glu-16, Cys-52 to His-59, Val-67 to Gln-72.	AR039: 3, AR096: 3, AR052: 3, AR053: 3, AR104: 2, AR060: 2, AR089: 2, AR055: 2, AR033: 2, AR061: 1 H0521: 4, L0803: 3, L0439: 3, S0046: 2, H0488: 2, L0747: 2, L0758: 2, L0759: 2, H0556: 1, H0685: 1, H0657: 1, S0418: 1, S0360: 1, H0632: 1, H0486: 1, L0021: 1, H0618: 1, S0474: 1, H0421: 1, H0457: 1, H0014: 1, H0266: 1, H0622: 1, T0041: 1, H0561: 1, L0770: 1, L0761: 1, L0667: 1, L0372: 1, L0800: 1, L0662: 1, L0794: 1, L0804: 1, L0805: 1, L0789: 1, L0666: 1, H0520: 1, H0659: 1, H0672: 1, H0539: 1, L0740: 1, L0750: 1, L0779: 1, L0777: 1, L0752: 1, L0599: 1, L0603: 1, S0026: 1, H0543: 1 and H0422: 1.			107-135, 73-94
923	HNHFY67	878569	933	660 - 178	2338	Arg-58 to Glu-64, Glu-72 to Lys-77, Glu-149 to Met-156.	AR053: 1, AR055: 1, AR089: 1, AR104: 1, AR033: 1, AR096: 1, AR061: 1, AR060: 0,			113-133, 19-35

924	HWLLR80	878628	934	52 - 1098	2339	Glu-27 to Gly-33, Pro-87 to Gly-94, Gly-110 to Leu-115, Asn-129 to Asp-134, Asn-148 to Glu-153, Ala-209 to Asp-215, Ser-241 to Ser-251.	AR052: 0 S0001: 7, S0028: 6, S0278: 2, H0575: 2, S0050: 2, H0271: 2, S0053: 2, S0031: 2, S0260: 2, L0593: 2, H0381: 1, H0419: 1, S0180: 1, S0282: 1, S0045: 1, L0476: 1, H0416: 1, H0313: 1, H0068: 1, S0036: 1, S0052: 1, S0428: 1, S0216: 1, S0146: 1, S0390: 1, L0592: 1 and L0603: 1.				283-306, 36-52
925	HLYAG35	878700	935	71 - 787	2340	Ala-24 to Asp-31.	AR039: 15, AR096: 8, AR060: 7, AR053: 6, AR089: 6, AR033: 6, AR052: 4, AR055: 3, AR104: 3, AR061: 2 H0046: 1 and H0445: 1.				92-121, 188-206
926	HDPLU91	878742	936	106 - 930	2341	Pro-18 to Val-23, Pro-50 to Ser-60, Gln-97 to Gly-103.	AR089: 13, AR053: 12, AR104: 9, AR052: 9, AR096: 7, AR033: 7,				30-52, 62- 80, 206- 222, 228-

AR055: 6, AR039: 6, AR060: 5, AR061: 4 L0526: 6, L0439: 6, L0666: 4, L0758: 4, L0638: 3, L0655: 3, H0672: 3, L0740: 3, L0754: 3, H0657: 2, H0638: 2, S0418: 2, L0005: 2, S0376: 2, H0083: 2, L0770: 2, L0769: 2, L0761: 2, L0657: 2, L0659: 2, L0783: 2, L0519: 2, L0663: 2, L0664: 2, L0438: 2, L0581: 2, L0608: 2, H0423: 2, H0422: 2, S6024: 1, H0650: 1, H0664: 1, L0481: 1, S0356: 1, H0611: 1, S0010: 1, H0581: 1, H0251: 1, H0046: 1, H0050: 1, S0048: 1, H0266: 1, H0188: 1, L0483: 1, H0591: 1, H0038: 1, H0040: 1, H0616: 1, L0564: 1, H0022: 1, H0509: 1, H0130: 1, S0422: 1, L0640: 1, L0771: 1, L0662: 1, L0768: 1, L0766: 1, L0375: 1, L0776: 1, L0809: 1, L0528: 1, L0792: 1, H0659: 1, H0670: 1, H0660: 1, H0648: 1, S0380: 1, H0521: 1, H0696:			244
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927	HTFNS65	878748	937	190 - 750	2342	Thr-15 to His-21, Gly-30 to Lys-39, Arg-113 to Met-118, Arg-178 to Ala-187.	1, S0392: 1, L0742: 1, L0749: 1, L0756: 1, L0777: 1, L0731: 1, L0757: 1, L0759: 1, L0588: 1, L0589: 1, L0590: 1, L0592: 1, L0595: 1 and H0543: 1. AR053: 1, AR033: 1, AR089: 1, AR104: 1, AR060: 0, AR039: 0, AR061: 0, AR055: 0, AR052: 0, AR096: 0 L0777: 8, H0159: 3, S0408: 3, H0619: 3, L0770: 3, L0766: 3, L0783: 3, H0657: 2, H0617: 2, L0754: 2, L0747: 2, L0755: 2, L0731: 2, L0758: 2, H0265: 1, H0685: 1, S0134: 1, S0212: 1, H0663: 1, H0306: 1, H0402: 1, H0638: 1, S0444: 1, H0580: 1, S0046: 1, L0394: 1, H0431: 1, S0280: 1, H0052: 1, H0046: 1, H0081: 1, H0012: 1, S0036: 1, H0038: 1, H0412: 1, H0695: 1, L0769: 1, L0638: 1, L0764: 1, L0662: 1, L0774: 1, L0775: 1, L0375: 1, L0379: 1, L0438: 1, H0648: 1, S0028: 1,						133-158
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928	HDABG90	878755	938	43 - 1284	2343	Tyr-4 to Gln-9, Asp-49 to Lys-54.	L0748: 1, L0751: 1, L0779: 1, L0752: 1, L0592: 1 and S0424: 1. AR096: 2, AR033: 1, AR053: 1, AR089: 1, AR052: 1, AR039: 1, AR061: 1, AR060: 1, AR055: 1, AR104: 0 H0616: 2, H0497: 1 and H0618: 1.				226-264, 106-132, 139-171, 313-343, 178-201, 286-302, 217-234
929	HDPQO40	878790	939	106 - 726	2344	Pro-28 to Arg-35, Ser-51 to Pro-56, Pro-201 to Ser-207.	AR053: 3, AR052: 2, AR089: 2, AR096: 2, AR055: 2, AR033: 2, AR060: 2, AR061: 1, AR104: 1, AR039: 0 H0486: 3, L0766: 3, L0777: 3, S0002: 2, S0426: 2, L0743: 2, L0779: 2, L0759: 2, S0474: 1, H0673: 1, H0674: 1, H0477: 1, L0805: 1, L0659: 1, L0790: 1, H0522: 1, H0478: 1, H0445: 1 and H0543: 1.				157-173, 88-104, 13-29
930	HKAHL37	878823	940	12 - 698	2345	Gln-12 to Phe-25, Ala-82 to His-93, His-212 to Ala-217.	AR033: 5, AR061: 4, AR089: 3, AR052: 3, AR053: 2, AR055: 2, AR096: 2, AR060: 1, AR104: 1, AR039: 0 L0758: 12, H0617: 9,				21-46, 185-205, 50-74, 125-142, 106-122

	L0747: 8, H0618: 5, H0253: 4, S0049: 4, H0494: 4, L0742: 4, L0751: 4, L0745: 4, H0305: 3, H0580: 3, H0052: 3, L0157: 3, L0769: 3, L0768: 3, L0766: 3, L0774: 3, L0783: 3, H0144: 3, S0436: 3, H0341: 2, S0360: 2, H0550: 2, H0546: 2, H0424: 2, L0763: 2, L0793: 2, L0748: 2, L0439: 2, L0740: 2, L0752: 2, L0755: 2, L0757: 2, L0759: 2, L0581: 2, S0452: 2, H0556: 1, S0114: 1, H0483: 1, H0661: 1, S0358: 1, S0132: 1, S0476: 1, H0261: 1, S6016: 1, S0222: 1, H0592: 1, H0586: 1, H0559: 1, H0486: 1, T0060: 1, S0280: 1, H0575: 1, H0706: 1, L0024: 1, H0150: 1, H0620: 1, H0024: 1, T0010: 1, S6028: 1, H0179: 1, H0252: 1, H0417: 1, H0674: 1, H0708: 1, H0038: 1, H0059: 1, T0042: 1, H0509: 1, H0641: 1, S0144: 1, L0770: 1, L0637: 1, L0761: 1, L0363: 1, L0794: 1.						
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931	HBXAX11	878833	941	79 - 1239	2346	Met-1 to Tyr-11, Ser-190 to Thr-195, Pro-223 to Ser-229.	L0775: 1, L0807: 1, L0383: 1, L0528: 1, L0788: 1, H0520: 1, H0593: 1, H0684: 1, S0380: 1, H0521: 1, H0522: 1, H0696: 1, S0406: 1, H0555: 1, H0436: 1, L0754: 1, L0750: 1, L0777: 1, L0588: 1, H0543: 1, L0698: 1 and S0424: 1.					125-143, 145-161, 70-86
							AR033: 4, AR096: 3, AR061: 2, AR052: 2, AR053: 2, AR089: 1, AR060: 1, AR055: 1, AR104: 1, AR039: 0 L0809: 7, L0769: 4, L0761: 4, L0751: 4, L5565: 2, L0764: 2, L0766: 2, L0665: 2, L0747: 2, L0605: 2, H0657: 1, H0188: 1, S0038: 1, H0625: 1, L0646: 1, L0643: 1, L0645: 1, L0648: 1, L0768: 1, L0794: 1, L0649: 1, L0651: 1, L0655: 1, L0659: 1, L0382: 1, L0647: 1, L0666: 1, H0547: 1, H0519: 1, L0779: 1, L0752: 1, L0731: 1, L0757: 1, L0758: 1 and L0587: 1.					

932	HMVBC71	878904	942	175 - 744	2347	Pro-45 to Thr-52, Pro-57 to Gly-69, Pro-76 to Asn-86, Glu-92 to Gly-98, Asn-114 to Thr-121, Arg-147 to Arg-155, Pro-170 to Thr-181.	AR033: 6, AR104: 4, AR096: 4, AR089: 3, AR053: 2, AR060: 2, AR055: 2, AR052: 2, AR039: 2, AR061: 1 S0330: 3, S0046: 2, H0494: 2, L0065: 2, L0666: 2, H0670: 2, L0439: 2, H0624: 1, H0686: 1, H0295: 1, S0212: 1, S0442: 1, H0735: 1, H0549: 1, H0392: 1, H0559: 1, H0052: 1, H0597: 1, H0327: 1, H0009: 1, H0024: 1, S0050: 1, S0051: 1, H0428: 1, S0150: 1, H0641: 1, L0637: 1, L0662: 1, L0794: 1, L0649: 1, L0803: 1, L0774: 1, L0775: 1, L0651: 1, L0659: 1, L0526: 1, L0663: 1, L0665: 1, H0593: 1, H0690: 1, S0328: 1, H0696: 1, H0555: 1, S0037: 1, S0028: 1, L0756: 1, L0759: 1, S0434: 1 and S0276: 1.				122-145, 2-34
933	HHFML06	878912	943	140 - 559	2348	Lys-36 to Lys-41, Val-133 to Asn-140.	AR055: 9, AR089: 6, AR052: 6, AR033: 6, AR060: 5, AR061: 5, AR096: 5, AR053: 4, AR104: 4, AR039: 1	14q24.3	104311, 109150, 182600, 245200, 601208	101-127, 3-20, 52- 68, 80-96	

934	HEEAG84	878975	944	181 - 645	2349	Lys-13 to Thr-19.	AR096: 12, AR060: 10, AR055: 8, AR053: 8, AR104: 7, AR089: 7, AR052: 6, AR033: 5, AR039: 5, AR061: 4 H0549: 1 and H0538: 1.				33-51
935	HE8PT01	878979	945	1519 - 1929	2350	Met-113 to Arg-118.	AR039: 29, AR033: 19, AR104: 18, AR055: 18, AR053: 16, AR089: 13, AR052: 13, AR096: 13, AR060: 12, AR061: 12 L0747: 4, L0777: 4, S0222: 2, L0471: 2, L0455: 2, L0803: 2, L0790: 2, L0742: 2, L0748: 2, L0439: 2, L0753: 2, L0759: 2, L0717: 1, H0013: 1, H0575: 1, S0010: 1, H0350: 1, T0006: 1, L0770: 1, L0764: 1, L0794: 1, L0784: 1, L0806: 1, L0805: 1, S0052: 1, H0144: 1, L0438: 1, H0689: 1, L0749: 1, L0758: 1, H0445: 1 and L0599: 1.				91-109, 121-137
936	HMVCG79	879020	946	38 - 853	2351	Thr-28 to Arg-34, Leu-47 to Ser-53.	AR089: 6, AR060: 5, AR033: 4, AR104: 4, AR096: 3, AR039: 3, AR052: 3, AR053: 3,	6q14-q15	136550, 203310, 269920, 602772	141-165, 233-255, 3-25, 56- 72, 166-	

937	HSLJF33	879040	947	18 - 521	2352	Glu-65 to Gly-71.	AR061: 2, AR055: 1 S0002: 4, S0206: 4, L0748: 2, L0740: 2, L0777: 2, S0212: 1, H0661: 1, S0278: 1, H0370: 1, H0123: 1, S0142: 1, L0800: 1, L0790: 1, H0539: 1, H0555: 1, S3014: 1, S0028: 1, L0754: 1 and L0759: 1.				183, 104- 120, 199- 215
938	HFKJI43	879115	948	60 - 377	2353		AR096: 2, AR039: 2, AR053: 1, AR052: 1, AR061: 1, AR089: 1, AR055: 0, AR033: 0, AR060: 0, AR104: 0 S0390: 1 AR033: 33, AR104: 32, AR055: 22, AR039: 20, AR053: 16, AR089: 16, AR096: 13, AR060: 13, AR052: 12, AR061: 8 L0747: 17, S0442: 15, L0665: 13, S0358: 11, S0444: 11, S0408: 10, S0374: 10, H0597: 7, H0620: 6, L0375: 6, L0518: 5, H0539: 5, L0750: 5, H0135: 4, L0764: 4, L0776: 4, H0144: 4, L0751: 4, H0352: 4, H0170: 3, S0376:				97-126, 14-39, 43- 63, 125- 141
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939	HFVHV40	879156	949	104 - 808	2354	Tyr-122 to Asp-127, Glu-138 to Pro-150, Arg-160 to Asn-169.	1, H0553: 1, H0644: 1, H0321: 1, H0100: 1, L0351: 1, H0494: 1, H0560: 1, S0372: 1, S0440: 1, L0637: 1, L5575: 1, L0761: 1, L0643: 1, L0773: 1, L0648: 1, L0521: 1, L0768: 1, L0650: 1, L0774: 1, L0654: 1, L0636: 1, L0809: 1, L0647: 1, L0792: 1, H0702: 1, H0520: 1, H0519: 1, H0690: 1, H0435: 1, H0658: 1, H0670: 1, H0672: 1, S0174: 1, S0146: 1, S0406: 1, H0555: 1, S0027: 1, L0745: 1, L0779: 1, L0777: 1, L0753: 1, L0758: 1, L0759: 1, S0436: 1, L0601: 1, L0603: 1, S0106: 1, H0668: 1, S0026: 1 and S0412: 1.				74-91, 170-186, 1-17
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940	HTXLR12	879160	950	714 - 2069	2355	Tyr-48 to Asn-54.	1, H0135: 1, H0163: 1, H0040: 1, H0264: 1, H0412: 1, L0564: 1, H0130: 1, H0641: 1, S0144: 1, S0002: 1, L0763: 1, L0761: 1, L0372: 1, L0643: 1, L0764: 1, L0771: 1, L0648: 1, L0767: 1, L0803: 1, L0804: 1, L0375: 1, L0378: 1, L0659: 1, L0544: 1, L0665: 1, H0703: 1, L0352: 1, H0670: 1, S0328: 1, S0330: 1, H0134: 1, H0436: 1, S0027: 1, L0747: 1, L0756: 1, L0777: 1, L0753: 1, S0260: 1, H0445: 1, L0597: 1, H0653: 1 and S0194: 1.					425-451, 415-431
941	HDQEX68	879167	951	10 - 1470	2356	Asp-4 to Glu-9, Ala-44 to Glu-62,	AR052: 4, AR055: 4, AR039: 3, AR060: 3, AR096: 3, AR033: 3, AR053: 2, AR089: 2, AR061: 2, AR104: 2 H0038: 2, H0265: 1, H0556: 1, S0134: 1, H0645: 1, S0222: 1, L0455: 1, S0328: 1, S0028: 1, L0591: 1 and S0194: 1.					371-388, 295-311,

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942	HTPHG81	879182	952	198 - 1127	2357	Pro-9 to Glu-16, Ser-25 to Asp-31, Glu-55 to Glu-61, Met-87 to Gly-104, Cys-151 to Trp-157, Arg-222 to Gln-231, Val-275 to Pro-284.	L0662: 1, L0794: 1, L0774: 1, L0806: 1, L0805: 1, L0809: 1, L0367: 1, L0792: 1, L0663: 1, L0664: 1, H0144: 1, H0519: 1, H0670: 1, H0696: 1, S0406: 1, S0027: 1, L0751: 1, L0749: 1, L0750: 1, L0757: 1, L0480: 1, L0608: 1, S0011: 1, S0026: 1, S0242: 1, S0196: 1 and S0424: 1, AR039: 19, AR053: 13, AR096: 9, AR052: 9, AR055: 9, AR033: 9, AR089: 8, AR104: 7, AR060: 7, AR061: 6 H0553: 2, S0282: 1, S0049: 1, H0052: 1, H0622: 1, H0040: 1 and S0406: 1.				239-255, 114-130, 203-219
943	HETFJ66	879189	953	82 - 1503	2358	Pro-12 to Val-29, Glu-35 to Arg-40, Arg-46 to Ile-52, Tyr-88 to Ser-97, Gly-112 to Cys-117.	AR055: 5, AR052: 4, AR053: 3, AR061: 3, AR060: 3, AR033: 2, AR089: 2, AR096: 1, AR104: 0, AR039: 0 L0794: 24, H0046: 20, L0747: 5, L0748: 4, L0749: 4, H0013: 3, H0624: 2, H0553: 2, H0090: 2, L0761: 2, L0800: 2, L0767: 2,				195-211, 115-131

944	HUVC58	879222	954	116 - 1750	2359	Arg-34 to Glu-41, Met-74 to Thr-80, Glu-124 to Lys-133, Pro-166 to Val-177, Arg-234 to Val-244, Ile-251 to Arg-259, Leu-261 to Leu-269, Gln-271 to Arg-284, Lys-399 to Pro-407, Ile-449 to Ser-458, Lys-464 to Gln-474.	L0805: 2, L0791: 2, L0666: 2, L0438: 2, L0754: 2, L0755: 2, H0171: 1, H0265: 1, H0657: 1, H0656: 1, H0663: 1, H0580: 1, H0645: 1, S6014: 1, H0050: 1, H0428: 1, T0006: 1, L0456: 1, H0591: 1, H0040: 1, H0087: 1, H0100: 1, T0042: 1, L5566: 1, L0764: 1, L0776: 1, L0792: 1, L4501: 1, H0144: 1, H0547: 1, S0406: 1, L0439: 1, L0740: 1, L0750: 1, L0756: 1, L0779: 1, L0777: 1, L0752: 1, L0759: 1 and L0600: 1.				297-331, 138-166, 4-35, 404- 431, 41- 73, 360- 385, 99- 123, 494- 516, 188- 210, 339- 355
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					H0521: 2, L0747: 2, H0170: 1, H0716: 1, H0740: 1, S0114: 1, S0212: 1, S0442: 1, S0354: 1, H0580: 1, H0329: 1, H0431: 1, H0497: 1, H0331: 1, H0574: 1, H0632: 1, H0486: 1, H0427: 1, L0021: 1, H0036: 1, H0274: 1, S0010: 1, H0318: 1, H0581: 1, H0374: 1, H0052: 1, H0596: 1, H0597: 1, H0545: 1, H0373: 1, S0388: 1, H0107: 1, S0003: 1, S0214: 1, H0428: 1, H0622: 1, H0553: 1, H0163: 1, H0087: 1, T0067: 1, H0494: 1, H0560: 1, S0438: 1, S0440: 1, S0426: 1, UNKWN: 1, L0598: 1, L0763: 1, L0769: 1, L0638: 1, L0761: 1, L0641: 1, L0776: 1, L0379: 1, L0657: 1, L0809: 1, L0519: 1, L0791: 1, L0663: 1, H0684: 1, H0672: 1, S0378: 1, H0522: 1, S0404: 1, S0406: 1, S0028: 1, L0750: 1, L0756: 1, L0753: 1, S0031: 1, H0445: 1, H0595: 1, S0436: 1, L0581: 1, L0608:
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945	HDPGJ03	879294	955	475 - 32	2360	Asp-25 to Gln-32, Asn-40 to Lys-46, Trp-54 to Asn-62.	1, S0011: 1, S0026: 1, S0192: 1, S0196: 1, H0423: 1 and S0424: 1. AR104: 2, AR096: 2, AR052: 1, AR039: 1, AR055: 1, AR033: 1, AR060: 1, AR061: 1, AR089: 0, AR053: 0 S0278: 5, S0144: 5, S0002: 4, H0521: 4, S0003: 3, S0344: 3, H0575: 1, H0364: 1, S0214: 1, H0068: 1, H0591: 1, L0806: 1, L0805: 1 and L0776: 1.	60-87	
946	HUSIT07	879441	956	111 - 902	2361	Arg-24 to Arg-29, Arg-144 to Asn-151.	AR053: 10, AR033: 10, AR052: 9, AR089: 9, AR055: 8, AR060: 5, AR061: 4, AR039: 3, AR096: 2, AR104: 0 H0435: 3, S0476: 2, H0590: 2, L0758: 2, H0656: 1, H0484: 1, H0729: 1, S0046: 1, H0393: 1, H0632: 1, H0013: 1, S0474: 1, S0049: 1, H0074: 1, L0455: 1, H0598: 1, H0412: 1, L0648: 1, L0649: 1, L0527: 1, L0657: 1, L0659: 1, L0530: 1, H0539: 1, H0521:	1-22, 172- 195, 214- 241, 89- 122, 82- 98, 150- 166	

947	HWHHNS 5	879514	957	114 - 1013	2362	Gly-14 to Lys-22.	1 and S0032: 1. AR039: 19, AR096: 9, AR104: 8, AR033: 8, AR053: 8, AR052: 7, AR089: 6, AR055: 5, AR060: 5, AR061: 4 S0348: 1, S0418: 1, H0592: 1 and H0586: 1.			215-231
948	HTTJH57	879541	958	15 - 839	2363	Pro-8 to Ser-14, Leu-16 to Gly-25, Gly-33 to Gly-38, Glu-43 to Glu-51.	AR052: 5, AR055: 5, AR060: 3, AR039: 3, AR061: 3, AR089: 2, AR033: 2, AR096: 2, AR053: 1, AR104: 1 H0052: 1, H0286: 1, H0634: 1 and L0771: 1.			238-255
949	HMSND53	879589	959	22 - 1947	2364	Lys-37 to Lys-47, Thr-87 to Lys-93, Gly-100 to Val-105, Gln-111 to Thr-128, Pro-155 to Asp-173, Gln-177 to Gln-184, Glu-202 to Leu-216, Asn-272 to Asp-277, Asp-289 to His-297, Gly-395 to Phe-402, His-435 to Ala-440, Asp-489 to Glu-498, Arg-581 to Gln-586, Thr-611 to Arg-616,	AR060: 2, AR096: 2, AR089: 2, AR033: 2, AR053: 2, AR061: 1, AR052: 1, AR055: 1, AR104: 1 L0439: 9, L0471: 3, H0591: 2, H0547: 2, H0624: 1, H0170: 1, S0430: 1, H0656: 1, S0110: 1, S0420: 1, S0376: 1, T0114: 1, H0427: 1, H0071: 1, H0275: 1, T0010: 1, S6028: 1, H0266: 1, H0428: 1, H0031: 1, H0090: 1, H0038: 1,			254-270, 357-373, 595-611, 541-557



950	HMSNQ62	879610	960	149 - 1783	2365	Glu-624 to Cys-636.	H0040: 1, H0551: 1, S0014: 1, H0646: 1, S0426: 1, H0529: 1, L0766: 1, H0520: 1, S0126: 1, H0689: 1, H0518: 1, L0754: 1, L0485: 1 and H0423: 1.					109-125, 523-539
							AR055: 5, AR060: 4, AR096: 4, AR039: 3, AR053: 3, AR052: 3, AR033: 3, AR061: 3, AR089: 3, AR104: 2 H0457: 4, L0754: 4, L0803: 3, L0439: 3, H0575: 2, H0617: 2, L0662: 2, L0804: 2, L0805: 2, L0750: 2, L0731: 2, H0656: 1, H0484: 1, H0255: 1, H0663: 1, L0717: 1, H0549: 1, S0222: 1, H0602: 1, H0486: 1, H0013: 1, H0581: 1, H0251: 1, H0046: 1, H0150: 1, H0428: 1, H0553: 1, H0040: 1, H0063: 1, H0264: 1, H0623: 1, S0002: 1, S0426: 1, L0762: 1, L0763: 1, L0769: 1, L0766: 1, L0774: 1, L0787: 1, L0666: 1, L0663: 1, L0665: 1, L0565: 1, H0689: 1, H0658: 1, H0670: 1, S0136: 1,					

951	HGBHG78	879611	961	175 - 582	2366	Arg-63 to Thr-73, Pro-85 to Ser-92.	H0521: 1, L0748: 1, L0747: 1, L0752: 1 and H0423: 1, AR055: 15, AR053: 11, AR052: 10, AR089: 8, AR033: 8, AR060: 8, AR096: 7, AR061: 6, AR104: 6, AR039: 4 H0014: 1 and L0752: 1.	22q13.31	250100, 250800, 250800	40-57, 22- 38
952	HTLHI08	879620	962	59 - 967	2367	His-204 to Pro-209.	AR039: 44, AR055: 30, AR053: 22, AR033: 21, AR089: 19, AR060: 19, AR052: 18, AR096: 17, AR104: 16, AR061: 14 H0107: 2, L0758: 2, H0618: 1, H0154: 1, H0553: 1, H0038: 1 and H0616: 1.			70-98, 101-125, 169-190, 138-154
953	HSIDI48	879670	963	60 - 923	2368	His-102 to Gln-108, Asp-251 to Tyr-263, Gly-274 to Lys-288.	AR089: 17, AR052: 12, AR096: 9, AR039: 9, AR060: 8, AR104: 7, AR053: 6, AR033: 5, AR061: 5, AR055: 3 L0439: 17, L0777: 7, L0766: 6, L0740: 6, L0758: 5, L0483: 4, L0592: 4, H0178: 3, L0794: 3, S0358: 2, H0036: 2, H0039: 2, H0622: 2, H0644: 2, L0804: 2, L0775: 2, L0805: 2, L0438: 2, L0352: 2, H0670:			171-199, 78-97, 230-249, 33-50, 113-129, 215-231, 155-171, 15-31

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955	HFLUT19	879691	965	1084 - 2682	2370	Glu-26 to Lys-33, His-45 to Asn-50, Asp-149 to Tyr-154, Asn-175 to Asp-181, Gly-268 to Gln-275, Leu-375 to Asp-383, Thr-441 to Gly-456,	4, L0752: 4, S0438: 3, H0521: 3, L0747: 3, H0265: 2, H0638: 2, H0046: 2, L0805: 2, L0791: 2, L0438: 2, L0743: 2, L0748: 2, L0780: 2, L0731: 2, H0716: 1, L0002: 1, H0341: 1, S0212: 1, H0305: 1, H0589: 1, S0444: 1, T0039: 1, H0427: 1, T0110: 1, H0545: 1, H0375: 1, H0124: 1, H0090: 1, H0616: 1, H0202: 1, T0041: 1, H0647: 1, S0344: 1, S0422: 1, H0529: 1, L0371: 1, L0764: 1, L0804: 1, L0659: 1, L0783: 1, L0809: 1, L0663: 1, S0126: 1, H0648: 1, H0672: 1, S0152: 1, S0028: 1, L0749: 1, L0779: 1, L0755: 1, L0758: 1, L0759: 1, S0434: 1, H0506: 1 and H0008: 1.				404-420, 286-302, 195-211
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958	HOEPMH52	879744	968	307 - 777	2373	Arg-106 to Pro-115, Asn-134 to Lys-139, Pro-144 to Asp-151.	S0350: 1, S0188: 1, H0555: 1, H0436: 1, S0390: 1, S3014: 1, S0027: 1, L0780: 1, L0592: 1, L0361: 1, H0668: 1, H0653: 1, S0192: 1, H0542: 1, H0423: 1, S0424: 1, S0456: 1 and H0352: 1. AR039: 12, AR104: 6, AR096: 5, AR033: 5, AR053: 5, AR052: 4, AR089: 4, AR060: 4, AR055: 3, AR061: 2 L0748: 7, L0766: 5, H0040: 3, L0747: 3, L0777: 3, L0755: 3, H0657: 2, H0486: 2, H0596: 2, S0372: 2, L0803: 2, S0126: 2, L0740: 2, L0754: 2, L0749: 2, L0758: 2, S0026: 2, H0170: 1, H0265: 1, H0125: 1, S0358: 1, S0410: 1, S0007: 1, L0717: 1, H0431: 1, H0415: 1, H0333: 1, H0642: 1, T0060: 1, H0156: 1, H0599: 1, H0530: 1, H0081: 1, H0050: 1, L0471: 1, H0239: 1, H0510: 1, H0266: 1, H0179: 1, H0068: 1, H0163: 1, H0087: 1,					46-64, 27- 43
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959	HWAHE17	879774	969	229 - 633	2374	Pro-80 to Lys-86, Thr-92 to Gln-106.	AR096: 3, AR055: 1, AR033: 1, AR060: 1, AR104: 1, AR061: 1, AR089: 0, AR052: 0 S0354: 1, H0581: 1, L0770: 1, L0752: 1 and L0759: 1.	S0438: 1, L0598: 1, L0500: 1, L0761: 1, L0764: 1, L0805: 1, L0655: 1, L0789: 1, L0663: 1, L0665: 1, H0648: 1, H0215: 1, S0406: 1, L0756: 1, L0759: 1 and H0542: 1.			14-45, 53- 70, 35-51
960	HWAEG32	879900	970	27 - 530	2375	Leu-70 to Glu-75, Arg-131 to Ser-138.	AR039: 150, AR096: 20, AR053: 19, AR055: 11, AR089: 8, AR052: 4, AR033: 3, AR060: 2, AR061: 2, AR104: 1 S6026: 1, S0222: 1, H0191: 1, H0581: 1, H0544: 1 and H0598: 1.	S0438: 1, L0598: 1, L0500: 1, L0761: 1, L0764: 1, L0805: 1, L0655: 1, L0789: 1, L0663: 1, L0665: 1, H0648: 1, H0215: 1, S0406: 1, L0756: 1, L0759: 1 and H0542: 1.			1-32, 48- 66, 78-94
961	HSLHB42	879927	971	479 - 886	2376		AR039: 5, AR033: 1, AR089: 1, AR096: 1, AR060: 1, AR055: 1, AR061: 1, AR053: 1, AR104: 1, AR052: 0 L0439: 9, L0777: 4, S0212: 3, L0794: 3, L0766:	S0438: 1, L0598: 1, L0500: 1, L0761: 1, L0764: 1, L0805: 1, L0655: 1, L0789: 1, L0663: 1, L0665: 1, H0648: 1, H0215: 1, S0406: 1, L0756: 1, L0759: 1 and H0542: 1.			41-57, 17- 33, 77-93



962	HDSAC28	879957	972	72 - 425	2377	Pro-27 to Leu-34, Ser-41 to His-54, Ala-81 to Ser-90.	3, S0028: 3, L0754: 3, S0222: 2, H0591: 2, L0374: 2, L0803: 2, L0809: 2, H0521: 2, L0752: 2, L0731: 2, H0171: 1, H0713: 1, H0638: 1, S0444: 1, S0410: 1, L0021: 1, H0706: 1, H0545: 1, H0562: 1, H0051: 1, H0188: 1, H0553: 1, L0142: 1, H0090: 1, H0551: 1, L0351: 1, H0561: 1, L0763: 1, L0769: 1, L0761: 1, L0771: 1, L0662: 1, L0768: 1, L0804: 1, L0774: 1, L0806: 1, H0144: 1, S0122: 1, H0659: 1, H0522: 1, S0044: 1, H0626: 1, L0744: 1, L0747: 1, L0756: 1, L0755: 1, S0260: 1, S0436: 1, S0242: 1 and H0542: 1.	AR096: 8, AR089: 7, AR055: 7, AR060: 6, AR039: 6, AR033: 5, AR052: 5, AR053: 4, AR104: 4, AR061: 4 H0052: 2, H0255: 1, H0662: 1, H0329: 1, L0789: 1, H0690: 1 and L0747: 1.					99-115, 64-80
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963	HFIHT27	879972	973	47 - 1873	2378	Pro-23 to Ser-30, Lys-64 to Gly-69, Arg-110 to Glu-117, Asp-218 to Lys-223, Lys-243 to Gly-249, Ala-448 to Glu-453, Asp-479 to Gln-485, Asn-504 to Ser-510, Pro-547 to Gln-557.	AR052: 3, AR096: 3, AR039: 2, AR061: 2, AR055: 2, AR053: 1, AR089: 1, AR033: 1, AR060: 1, AR104: 1 S0358: 1, H0580: 1, T0039: 1, H0519: 1, S0194: I and H0543: 1.			399-415, 335-351, 6-22, 45- 61
964	HBIMS61	879980	974	318 - 704	2379		AR039: 30, AR053: 23, AR096: 20, AR033: 18, AR089: 18, AR104: 17, AR052: 16, AR055: 15, AR060: 12, AR061: 9 L0803: 5, L0763: 3, S0360: 2, H0556: 1, H0369: 1, H0392: 1, H0599: 1, H0581: 1, H0251: 1, H0012: 1, L0770: 1, L0800: 1, L0375: 1, L0807: 1, L0809: 1, L0647: 1, L0663: 1, H0593: 1 and L0779: 1.			38-63, 71- 94, 10-26
965	HCDAH28	880010	975	781 - 1227	2380		AR061: 11, AR055: 7, AR096: 6, AR060: 5, AR052: 5, AR033: 4, AR089: 3, AR053: 3, AR104: 2, AR039: 2 H0251: 8, H0624: 4, L0752: 4, H0171: 1, H0286:			79-103, 113-136, 8-24

966	HSDFD90	880039	976	866 - 1399	2381	Gln-9 to Gly-15.	1, L0598: 1, L0774: 1, S0428: 1, H0144: 1 and S0126: 1. AR104: 82, AR033: 43, AR055: 7, AR096: 5, AR089: 4, AR052: 4, AR060: 4, AR039: 4, AR053: 4, AR061: 3 S0126: 2, H0171: 1, S0134: 1, S0053: 1 and S0031: 1.			143-171, 48-68, 15- 33, 73-89
967	HTLJK34	880137	977	177 - 782	2382	Thr-125 to Gly-141, Pro-151 to Leu-156, Cys-160 to Lys-169, Lys-175 to Lys-187.	AR055: 10, AR060: 6, AR061: 5, AR033: 5, AR089: 4, AR096: 4, AR053: 4, AR052: 3, AR104: 3, AR039: 2 L0758: 5, H0618: 1, H0616: 1 and L0794: 1.			30-57, 12- 28, 105- 121
968	HNGKC65	880142	978	1207 - 1671	2383	Ala-97 to His-105.	AR033: 1, AR039: 1, AR089: 1, AR060: 1, AR096: 1, AR053: 1, AR061: 0, AR052: 0, AR055: 0, AR104: 0 H0687: 2, S0428: 1, H0682: 1 and S0032: 1.			21-52, 53- 77, 123- 144, 105- 121, 14-30
969	HHENP77	880178	979	770 - 2893	2384	Glu-124 to Leu-131, Asp-266 to Pro-271, Asn-273 to Phe-280, Glu-315 to Arg-321,	AR039: 11, AR033: 7, AR096: 6, AR053: 5, AR052: 5, AR104: 4, AR089: 4, AR060: 4,			625-652, 3-19, 210- 226, 150- 166, 494

						Pro-400 to Val-407, Ala-446 to Pro-452, Thr-487 to Gly-492, Phe-517 to Gly-523, Tyr-599 to Lys-605, Thr-611 to Thr-626, Met-653 to Gly-658, Ala-686 to Thr-692.	AR055: 3, AR061: 2 H0543: 18, L0438: 6, L0747: 5, L0439: 4, L0750: 4, L0779: 4, L0759: 4, L0592: 4, S0412: 4, H0156: 3, L0770: 3, L0758: 3, H0423: 3, H0402: 2, H0251: 2, L0809: 2, L0777: 2, H0542: 2, H0422: 2, H0624: 1, H0170: 1, S0114: 1, S0420: 1, S0007: 1, S6026: 1, H0351: 1, S6016: 1, H0013: 1, L0021: 1, H0575: 1, L0157: 1, T0010: 1, H0354: 1, S6028: 1, S0036: 1, H0038: 1, L0804: 1, L0787: 1, L0666: 1, H0658: 1 and L0742: 1.			510
970	HDPBD83	880199	980	1139 - 1720	2385	Arg-8 to Glu-21.	AR089: 1, AR096: 1, AR060: 1, AR053: 1, AR033: 1, AR104: 1, AR061: 1, AR055: 0, AR039: 0, AR052: 0 H0046: 18, H0556: 8, L0731: 8, L0749: 6, H0457: 5, H0266: 5, L0761: 5, L0747: 5, H0265: 4, H0009: 4, L0764: 4, L0565: 4, L0758: 4, H0255: 3, H0012: 3, H0620: 3, H0264: 3,			100-117

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971	HHEVU86	880221	981	157 - 480	2386	Pro-46 to Ser-55, Gly-90 to His-96.	L0640: 1, L0770: 1, L0637: 1, L0372: 1, L0643: 1, L0374: 1, L0375: 1, L0776: 1, L0659: 1, L0636: 1, L0518: 1, L0382: 1, L0519: 1, L0647: 1, L0663: 1, H0144: 1, H0723: 1, H0520: 1, H0690: 1, H0435: 1, H0660: 1, H0672: 1, S0328: 1, H0539: 1, S0152: 1, S0406: 1, L0612: 1, S0037: 1, L0741: 1, L0744: 1, L0439: 1, L0740: 1, L0751: 1, L0757: 1, S0031: 1, H0707: 1, L0485: 1 and H0543: 1.					53-75, 28- 44
972	HNFB27	880254	982	309 - 1484	2387		AR096: 11, AR089: 9, AR039: 8, AR104: 5, AR053: 5, AR052: 5, AR060: 4, AR033: 4, AR055: 1, AR061: 1 H0635: 1, H0052: 1, L0648: 1, L0601: 1 and H0543: 1. AR096: 3, AR039: 1, AR033: 1, AR061: 1, AR089: 1, AR060: 0, AR055: 0, AR053: 0, AR104: 0					276-309

973	HAPSG46	880278	983	6 - 434	2388				H0052: 8, H0620: 3, H0494: 2, L0741: 2, S0046: 1, H0645: 1, H0587: 1, H0485: 1, H0156: 1, L0032: 1, H0569: 1, H0012: 1, H0014: 1, T0010: 1, H0375: 1, H0416: 1, H0622: 1, H0553: 1, S0036: 1, H0702: 1, L0438: 1, H0547: 1, H0435: 1, H0660: 1, H0555: 1, L0611: 1 and H0506: 1.				15-39, 90- 114, 70- 89, 38-60
974	HTEDK31	880341	984	179 - 529	2389				AR061: 2, AR039: 1, AR060: 1, AR089: 1, AR033: 1, AR096: 0, AR053: 0, AR055: 0, AR104: 0, AR052: 0 S0001: 2, H0575: 1, S0388: 1 and S0260: 1. AR055: 7, AR053: 4, AR060: 4, AR052: 4, AR039: 3, AR033: 3, AR061: 3, AR096: 2, AR089: 2, AR104: 1 H0038: 2, L0770: 2, H0597: 1, H0616: 1, L0560: 1 and L0526: 1.				19-42, 1- 18, 77-93, 53-69
975	HCWFW0 7	880358	985	111 - 662	2390	Pro-22 to Thr-29, Gln-120 to Arg-128, Asn-151 to Phe-167.			AR096: 6, AR104: 4, AR033: 3, AR055: 3, AR060: 3, AR089: 3,				42-68, 97- 116

976	HUFCR29	880363	986	498 - 1154	2391	Met-1 to Gln-7, Pro-9 to Leu-14, Trp-27 to Arg-33.	AR052: 2, AR039: 1, AR061: 1, AR053: 1 L0766: 5, L0777: 4, H0305: 2, L0362: 2, H0624: 1, H0208: 1, H0441: 1, H0599: 1, S0010: 1, H0318: 1, H0052: 1, H0616: 1, H0560: 1, L0768: 1, L0805: 1, S0406: 1, L0748: 1, L0758: 1 and L0592: 1.					107-138, 140-173, 65-91, 31- 57
							AR052: 3, AR089: 2, AR033: 2, AR055: 2, AR053: 2, AR096: 1, AR060: 1, AR061: 1, AR104: 0, AR039: 0 L0803: 5, L0764: 4, H0617: 3, L0771: 3, L0809: 3, L0751: 3, S0458: 3, H0549: 2, S0051: 2, L0761: 2, L0800: 2, L0508: 2, L0664: 2, H0689: 2, S0436: 2, H0170: 1, S0354: 1, S0358: 1, H0208: 1, H0438: 1, H0282: 1, S0010: 1, H0085: 1, H0059: 1, L0502: 1, L0770: 1, L0646: 1, L0643: 1, L0794: 1, L0774: 1, L0805: 1, L0511: 1, L0517: 1, L0665: 1, H0658: 1, H0696: 1, S0404: 1,					



977	HNTCN90	880370	987	338 - 637	2392			S0406: 1, L0439: 1, L0755: 1, S0260: 1, L0599: 1 and H0506: 1. AR061: 3, AR096: 2, AR055: 1, AR053: 1, AR104: 1, AR089: 1, AR033: 1, AR060: 1, AR039: 0, AR052: 0 H0676: 1, H0013: 1, H0553: 1, H0529: 1, H0519: 1, L0745: 1 and L0759: 1.			33-66, 2- 19
978	HCMSE07	880378	988	555 - 896	2393	Glu-59 to Gln-65.		AR096: 95, AR039: 83, AR104: 79, AR033: 64, AR060: 48, AR089: 42, AR061: 42, AR053: 40, AR052: 38, AR055: 27 H0651: 155, L0731: 9, L0777: 6, L0803: 4, L0775: 3, H0196: 2, H0163: 2, L0662: 2, L0805: 2, L0783: 2, L0438: 2, L0740: 2, L0759: 2, H0170: 1, S0444: 1, H0592: 1, H0632: 1, L0471: 1, H0399: 1, H0615: 1, H0040: 1, S0294: 1, H0647: 1, L0598: 1, L0763: 1, L0638: 1, L0637: 1, L0642: 1, L0374: 1, L0767: 1, L0768: 1, L0794: 1,			65-83, 86- 102

979	HWPMEV6 1	880405	989	1227 - 1529	2394	Gln-26 to Cys-32.	L0804: 1, L0774: 1, L0375: 1, L0776: 1, L0606: 1, L0659: 1, L0809: 1, L0647: 1, L0789: 1, L0791: 1, L0666: 1, L0663: 1, L0664: 1, L0665: 1, H0659: 1, H0658: 1, H0672: 1, S0328: 1, H0539: 1, S0380: 1, L0439: 1, L0779: 1, L0594: 1, L0361: 1, S0026: 1, S0242: 1 and S0460: 1.				55-73, 3- 19, 35-51
980	HDPW182	880431	990	41 - 730	2395		AR039: 15, AR033: 8, AR104: 5, AR089: 5, AR096: 5, AR052: 5, AR053: 4, AR060: 4, AR055: 4, AR061: 3 H0253: 2, L0455: 2, L0764: 2, L0649: 2, L0754: 2, S0358: 1, H0046: 1, H0617: 1, H0090: 1, H0038: 1, S0142: 1, S0344: 1, L0646: 1, L0771: 1, L0662: 1, L0766: 1, L0803: 1, L0658: 1, L0659: 1, L0789: 1, H0539: 1, S0404: 1, S0406: 1, L0439: 1, L0750: 1, L0777: 1 and L0780: 1.				24-56, 183-207,

981	HBGOU17	880444	991	41 - 505	2396	Gln-67 to Ala-73, Ala-85 to Asp-90, Arg-102 to Thr-112.	AR089: 1, AR061: 1, AR104: 0, AR052: 0, AR039: 0, AR055: 0 H0171: 4, L0803: 3, H0521: 3, H0624: 2, S0358: 2, S0222: 1, H0574: 1, L0040: 1, H0622: 1, T0006: 1, L0455: 1, L0763: 1, L0662: 1, L0766: 1, L0655: 1, L0659: 1, L0664: 1, L0665: 1, H0144: 1, S0374: 1, H0522: 1, H0540: 1, L0744: 1, L0779: 1, H0445: 1, L0589: 1, S0458: 1 and H0506: 1.					115-136, 151-169, 70-86, 96- 112
							AR055: 8, AR061: 5, AR060: 4, AR033: 4, AR089: 4, AR052: 4, AR053: 4, AR096: 2, AR104: 2, AR039: 0 L0748: 9, H0617: 4, S0222: 2, L0769: 2, L0756: 2, L0758: 2, H0341: 1, S0001: 1, S0358: 1, H0619: 1, T0040: 1, S0346: 1, H0052: 1, H0081: 1, H0266: 1, L0143: 1, S0142: 1, S0344: 1, L0774: 1, L0784: 1, H0144: 1, H0651: 1, S0027: 1, L0777: 1 and					118-142

982	HHAMV78	880520	992	585 - 265	2397	Pro-23 to Gly-29, Glu-101 to Asp-107.	S0011: 1. AR104: 210, AR033: 209, AR061: 205, AR096: 150, AR060: 149, AR055: 120, AR089: 118, AR039: 110, AR052: 77, AR053: 56 L0755: 6, L0774: 4, L0776: 4, L0747: 4, L0750: 4, L0769: 3, L0809: 3, L0439: 3, S0358: 2, H0333: 2, H0545: 2, L0770: 2, L0764: 2, L0803: 2, L0775: 2, S0328: 2, S0330: 2, H0696: 2, L0777: 2, H0008: 2, H0556: 1, T0002: 1, H0656: 1, L0785: 1, H0341: 1, H0483: 1, L0005: 1, S0007: 1, H0549: 1, L0623: 1, H0599: 1, H0052: 1, L0157: 1, L0471: 1, H0023: 1, H0615: 1, T0023: 1, H0031: 1, H0644: 1, L0055: 1, S0366: 1, S0036: 1, H0135: 1, H0063: 1, T0067: 1, H0560: 1, S0422: 1, L0371: 1, L0521: 1, L0766: 1, L0375: 1, L0805: 1, L0653: 1, L0661: 1, L0658: 1, L0526: 1, L0531: 1, L0530: 1, L0789: 1, L0666:				60-85
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983	HMALN60	880542	993	3 - 512	2398	Arg-6 to Gln-13, Thr-44 to Ser-50, Pro-145 to Asn-168.		AR060: 5, AR096: 3, AR055: 3, AR061: 2, AR104: 1, AR033: 0, AR089: 0, AR053: 0, AR052: 0 S0045: 1, S0278: 1, H0617: 1 and S0044: 1.				93-110
984	HETBT53	880575	994	66 - 1574	2399	Ser-30 to Leu-36, His-55 to Asn-61, Gln-71 to Gln-96, Pro-129 to Lys-136, Lys-146 to Ser-157, Gly-215 to Ala-220, Ala-250 to Ser-256, Phe-316 to Arg-323, Pro-421 to Ala-427, Leu-435 to Asp-440, Ser-453 to Asp-460.		AR060: 6, AR055: 3, AR089: 1, AR039: 1, AR104: 1, AR033: 1, AR061: 1, AR053: 0, AR096: 0, AR052: 0 H0046: 3, L0601: 3, H0013: 2, H0050: 2, H0620: 2, L0774: 2, S0222: 1, L0471: 1, H0012: 1, L0455: 1, S0150: 1, L0770: 1, L0775: 1, L0655: 1, H0144: 1, H0521: 1, H0134: 1, L0752: 1, S0260: 1 and S0042: 1.				166-182, 401-417
985	HRAEC49	880595	995	148 - 1251	2400	Phe-30 to Arg-36, Ser-68 to Trp-75.		AR096: 8, AR089: 7, AR060: 7, AR104: 6,				71-101, 339-363,

986	HNHBD03	880637	996	100 - 1140	2401	Met-1 to Gly-7, Arg-31 to Val-38,	AR039: 5, AR053: 5, AR052: 5, AR033: 4, AR061: 2, AR055: 1 S0222: 3, L0769: 3, L0361: 3, H0156: 2, H0046: 2, H0179: 2, L0794: 2, L0791: 2, H0521: 2, H0555: 2, L0779: 2, L0758: 2, H0624: 1, S0114: 1, H0393: 1, H0549: 1, H0550: 1, S0220: 1, H0357: 1, H0415: 1, H0586: 1, H0331: 1, H0574: 1, H0036: 1, S0010: 1, H0581: 1, H0052: 1, H0596: 1, H0178: 1, H0014: 1, S0051: 1, T0010: 1, H0271: 1, H0553: 1, L0143: 1, H0617: 1, H0040: 1, H0616: 1, H0063: 1, H0551: 1, H0561: 1, H0652: 1, L5575: 1, L0764: 1, L0806: 1, L0809: 1, H0144: 1, S0374: 1, H0539: 1, S0378: 1, H0518: 1, H0478: 1, L0751: 1, L0747: 1, L0750: 1, L0780: 1, L0731: 1, L0366: 1, S0026: 1 and H0667: 1.			149-168, 45-65, 8- 25, 292- 309, 109- 125
986	HNHBD03	880637	996	100 - 1140	2401	Met-1 to Gly-7, Arg-31 to Val-38,	AR055: 5, AR052: 3, AR060: 2, AR033: 2,		254-271, 233-249	

987	HTTCB17	880657	997	55 - 1743	2402	Met-40 to Arg-45, Arg-78 to Phe-84, Gly-120 to Gly-126, Phe-150 to Asp-156, Leu-167 to Gly-176, Thr-195 to Thr-202, Asn-336 to Leu-344.	AR089: 2, AR061: 1, AR096: 1, AR104: 1, AR039: 0, AR053: 0 L0766: 5, L0779: 5, L0731: 4, S0358: 3, L0770: 2, L0794: 2, S0374: 2, L0747: 2, L0749: 2, S0444: 1, H0013: 1, H0575: 1, H0581: 1, H0572: 1, H0354: 1, H0622: 1, H0591: 1, H0551: 1, H0494: 1, S0440: 1, H0529: 1, L0796: 1, L0773: 1, L0662: 1, L0804: 1, L0659: 1, L0790: 1, S0053: 1, H0690: 1, H0648: 1, H0672: 1, S0028: 1, L0780: 1, S0434: 1, S0192: 1, H0543: 1 and H0423: 1.					47-63, 233-249
						Trp-15 to Gly-46.	AR052: 11, AR053: 9, AR055: 8, AR033: 6, AR060: 6, AR096: 5, AR061: 4, AR089: 4, AR104: 4, AR039: 3 L0766: 8, L0748: 7, H0038: 4, H0543: 4, L0779: 3, H0624: 2, S0007: 2, H0083: 2, L0805: 2, L0666: 2, H0547: 2, L0439: 2, L0777: 2, L0758: 2, L0596: 2, L0599: 2, S0026: 2,					

988	HE9QG38	880670	998	345 - 1646	2403	Met-1 to Arg-7, Pro-11 to Phe-16, Gly-23 to Glu-34, Trp-124 to Arg-132, Gln-165 to Asp-181, Phe-216 to Thr-221, Gln-286 to Ser-301, Gly-317 to Gln-322, Asp-357 to Asn-366.	<p>H0657: 1, S0212: 1, H0255: 1, S0420: 1, S0358: 1, S0444: 1, S0360: 1, H0431: 1, S0414: 1, H0004: 1, S0010: 1, H0597: 1, H0546: 1, H0354: 1, H0266: 1, H0383: 1, H0361: 1, H0040: 1, H0616: 1, L0151: 1, H0264: 1, H0560: 1, L0520: 1, L0640: 1, L0638: 1, L0794: 1, L0803: 1, L0375: 1, L0806: 1, L0655: 1, L0663: 1, H0520: 1, H0519: 1, H0670: 1, H0672: 1, S0146: 1, H0555: 1, L0752: 1, L0731: 1, L0759: 1, S0031: 1, H0445: 1, L0595: 1 and L0366: 1.</p> <p>AR061: 6, AR052: 5, AR055: 4, AR096: 4, AR089: 4, AR053: 3, AR033: 3, AR060: 3, AR039: 2, AR104: 1, L0766: 7, L0803: 4, H0144: 4, L0779: 3, H0271: 2, S0003: 2, L0761: 2, L0792: 2, L0755: 2, H0171: 1, H0556: 1, S0134: 1, S0218: 1, H0656: 1, S0356: 1, H0580: 1, H0619: 1,</p>						52-68
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989	HTTJY18	880697	999	310 - 1263	2404	Met-1 to Lys-8, Lys-23 to Ala-31.	<p>H0600: 1, H0632: 1, H0318: 1, H0563: 1, H0428: 1, H0039: 1, H0553: 1, H0090: 1, H0038: 1, H0040: 1, H0623: 1, S0440: 1, S0150: 1, H0641: 1, S0002: 1, L0769: 1, L0764: 1, L0662: 1, L0775: 1, L0776: 1, H0547: 1, S0126: 1, S0152: 1, L0740: 1, L0754: 1, L0749: 1, L0777: 1, L0752: 1, H0423: 1 and H0422: 1.</p> <p>AR096: 3, AR052: 1, AR055: 1, AR039: 1, AR104: 1, AR089: 1, AR053: 1, AR061: 1, AR060: 0, AR033: 0, L0766: 43, L0754: 12, L0740: 11, S0358: 9, H0575: 7, L0803: 7, L0747: 6, L0731: 6, L0761: 5, L0662: 5, L0805: 5, L0744: 5, L0748: 5, L0779: 5, L0794: 4, H0710: 4, L0749: 4, L0750: 4, L0752: 4, L0757: 4, L0471: 3, H0264: 3, S0210: 3, L0806: 3, S0126: 3, S0328: 3, L0743: 3, L0777: 3, L0759: 3, H0423: 3, S0376: 2, H0013:</p>					282-308, 110-126
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990	HPSND10	880733	1000	63 - 1469	2405	Ser-30 to Leu-35, Pro-44 to Glu-63, Arg-138 to Ala-143, Phe-170 to Asp-177, Arg-248 to Phe-253, Ser-270 to Ala-277, Asp-322 to Gly-335, Leu-363 to Ser-369, Tyr-381 to Glu-388, Arg-455 to Arg-460.	1, H0040: 1, H0634: 1, H0616: 1, T0067: 1, H0488: 1, H0433: 1, H0056: 1, H0560: 1, H0529: 1, L0369: 1, L0762: 1, L0770: 1, L0638: 1, L0373: 1, L0372: 1, L0764: 1, L0773: 1, L0804: 1, L0776: 1, L0659: 1, L0518: 1, L0384: 1, L0789: 1, L0666: 1, L0663: 1, L0664: 1, S0148: 1, H0547: 1, H0659: 1, H0670: 1, H0539: 1, S0378: 1, H0518: 1, H0521: 1, H0555: 1, S0028: 1, L0758: 1, H0445: 1, S0434: 1, L0588: 1, S0192: 1, H0543: 1, S0458: 1 and S0384: 1.				230-246, 89-107, 199-215, 122-138, 149-165
						AR096: 90, AR053: 49, AR039: 45, AR052: 27, AR089: 22, AR055: 15, AR033: 14, AR061: 14, AR104: 13, AR060: 10 L0439: 6, H0556: 2, S0007: 2, L0744: 2, L0740: 2, L0731: 2, S0442: 1, L0021: 1, H0618: 1, H0253: 1, H0041: 1, L0770: 1, L0800: 1, L0766: 1, L0803: 1, L0375: 1, L0807: 1,					

991	HDABX58	880753	1001	924 - 1490	2406	Met-1 to Thr-7, Trp-12 to Trp-17.	L0382: 1, L0791: 1, L0793: 1, L0352: 1, S0432: 1, L0741: 1 and L0779: 1. AR052: 8, AR039: 7, AR033: 7, AR089: 7, AR053: 6, AR096: 6, AR104: 5, AR055: 5, AR060: 4, AR061: 4 L0803: 9, L0740: 9, L0769: 6, L0794: 5, L0805: 5, L0439: 5, L0518: 4, H0059: 3, L0809: 3, L0757: 3, H0550: 2, S0222: 2, H0497: 2, H0618: 2, H0620: 2, S0051: 2, L0638: 2, L0747: 2, L0750: 2, L0596: 2, L0605: 2, H0265: 1, H0583: 1, H0381: 1, S0282: 1, H0254: 1, H0255: 1, S0418: 1, S0360: 1, S0007: 1, H0486: 1, H0156: 1, H0052: 1, H0263: 1, H0545: 1, H0457: 1, H0150: 1, H0050: 1, T0010: 1, H0083: 1, H0286: 1, H0428: 1, H0418: 1, H0673: 1, S0036: 1, H0551: 1, H0264: 1, H0494: 1, H0130: 1, L0770: 1, L0761: 1, L0646: 1, L0800: 1, L0662: 1, L0768:	9q34.1	103000, 114350, 120900, 131195, 185000, 189980, 600184, 602575, 602575	37-57, 138-154, 82-98
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992	HE9PB45	880774	1002	880 - 1194	2407	Lys-95 to Tyr-100.	1, L0774: 1, L0775: 1, L0776: 1, L0807: 1, L0659: 1, L0787: 1, L0789: 1, L0666: 1, L0663: 1, L0664: 1, H0520: 1, H0682: 1, H0521: 1, H0478: 1, L0751: 1, L0755: 1, L0731: 1, L0759: 1, L0592: 1, L0608: 1, L0366: 1 and S0192: 1.				37-56, 5- 21
993	HELGM94	880807	1003	73 -	2408	Lys-91 to Ala-106,	AR061: 6, AR055: 5, AR033: 5, AR052: 4, AR096: 4, AR060: 3, AR089: 3, AR053: 3, AR104: 1 L0770: 6, L0766: 5, L0777: 5, L0759: 4, H0052: 2, L0769: 2, L0750: 2, L0592: 2, L0608: 2, S0040: 1, H0663: 1, H0497: 1, H0575: 1, L0157: 1, H0591: 1, H0264: 1, L0764: 1, L0662: 1, L0774: 1, H0144: 1, L0438: 1, S0126: 1, H0683: 1, H0521: 1, L0751: 1, L0754: 1, L0749: 1, L0752: 1, L0753: 1, L0758: 1, S0434: 1, H0543: 1 and H0422: 1.	16p11.2	147781,	139-155,	

				1437	Tyr-125 to Gly-132, Asn-157 to Glu-166, Glu-228 to Glu-233, Ser-315 to Asp-323, Leu-332 to Leu-337, Ser-363 to Lys-371, Thr-446 to Ile-452.	AR052: 8, AR060: 8, AR053: 7, AR033: 6, AR055: 6, AR039: 5, AR104: 5, AR061: 4 H0584: 5, H0599: 5, H0556: 4, H0124: 4, H0341: 3, H0559: 3, H0622: 3, H0125: 2, S0045: 2, H0620: 2, H0024: 2, T0042: 2, L0665: 2, H0265: 1, S6024: 1, H0583: 1, H0208: 1, S0046: 1, H0393: 1, S0278: 1, H0549: 1, H0550: 1, H0438: 1, H0586: 1, H0486: 1, H0250: 1, S0280: 1, H0706: 1, H0253: 1, H0009: 1, H0687: 1, H0284: 1, H0424: 1, H0031: 1, S0366: 1, H0116: 1, H0056: 1, S0038: 1, H0494: 1, H0132: 1, H0131: 1, H0130: 1, L0662: 1, L0803: 1, S0428: 1, S0216: 1, H0144: 1, S0126: 1, H0670: 1, H0518: 1, S0152: 1, S0118: 1, S3014: 1, L0759: 1 and S0011: 1.		172471, 182381	25-41, 377-393, 166-182
994	HJBBC09	880809	1004	102 - 1577	2409	Met-1 to Arg-14, Pro-20 to Ser-32, Arg-40 to Thr-49,	AR039: 5, AR055: 4, AR033: 4, AR096: 4, AR053: 3, AR052: 3,		75-94, 420-437, 317-335,

					Pro-107 to Thr-115, Ala-146 to Lys-151, Arg-243 to Tyr-254, Lys-309 to Trp-318.		AR104: 3, AR060: 3, AR061: 2, AR089: 2 H0556: 3, H0341: 2, H0144: 2, L0743: 2, H0543: 2, H0295: 1, H0661: 1, S0046: 1, H0587: 1, H0333: 1, H0486: 1, H0013: 1, H0618: 1, H0009: 1, H0024: 1, T0010: 1, H0553: 1, T0042: 1, S0150: 1, S0142: 1, S0422: 1, L0787: 1, H0519: 1, S0152: 1, H0134: 1, L0779: 1, S0434: 1, S0276: 1 and H0422: 1.			288-304, 151-167, 118-134, 188-204, 449-465
995	HTXJF02	880913	1005	122 - 646	2410	Ala-15 to Gln-20, Tyr-89 to Glu-103, Lys-156 to Gly-163.	AR033: 77, AR052: 62, AR053: 55, AR104: 36, AR089: 23, AR055: 22, AR096: 21, AR060: 12, AR039: 9, AR061: 9 H0556: 1, H0295: 1, S0418: 1, S0354: 1, H0586: 1, H0587: 1 and H0494: 1.			134-155, 26-45, 59- 77, 112- 129
996	HKAEN78	880927	1006	66 - 479	2411	Tyr-46 to Gly-52.	AR104: 7, AR033: 6, AR053: 6, AR052: 6, AR039: 5, AR060: 3, AR055: 3, AR096: 3, AR089: 3, AR061: 1 S0356: 2, S0002: 2, L0772: 2, L0748: 2, L0758: 2,			99-115, 16-32

							L0581: 2, H0265: 1, H0556: 1, H0341: 1, S0212: 1, S0444: 1, S0360: 1, H0249: 1, H0331: 1, H0744: 1, H0290: 1, H0100: 1, T0042: 1, H0494: 1, L0369: 1, L0763: 1, L0646: 1, L0645: 1, L0764: 1, L0771: 1, L0662: 1, L0381: 1, H0576: 1, L0777: 1, L0755: 1 and L0595: 1.				
997	HKADD76	880936	1007	93 - 1070	2412	Arg-49 to Tyr-62, Tyr-88 to Ala-97, Gly-230 to Lys-239, Gln-270 to Cys-276, Glu-296 to Gly-304.	AR096: 2, AR052: 1, AR061: 1, AR089: 1, AR060: 0, AR053: 0, AR033: 0, AR039: 0, AR104: 0 H0264: 4, H0488: 4, S0328: 3, S0306: 2, S0476: 1, H0272: 1, H0487: 1, H0494: 1, H0633: 1, L5623: 1 and S0330: 1.	2			239-268, 145-171, 100-118, 194-210, 5-21, 65-81, 132-148, 308-324
998	HKIYF62	880972	1008	140 - 517	2413	Val-7 to Lys-12, Tyr-58 to Leu-64, Arg-91 to Ser-104, Pro-117 to Val-126.	AR039: 28, AR096: 21, AR104: 18, AR060: 16, AR061: 16, AR089: 15, AR053: 15, AR055: 14, AR033: 13, AR052: 10 L0748: 17, H0521: 13, L0655: 4, H0522: 4, L0754: 4, H0575: 3, L0439: 3.	11q13	102200, 106100, 131100, 131100, 131100, 133780, 147050, 153700,	70-90, 12-28	



999	HBXAT65	881010	1009	145 - 918	2414	Asp-18 to Gly-24, Asp-63 to Met-70, Ser-82 to Pro-89, Glu-117 to Ser-125, Glu-151 to Asp-171.	L0605: 3, H0619: 2, S0010: 2, H0050: 2, S0051: 2, H0644: 2, S0344: 2, L0646: 2, L0775: 2, L0776: 2, L0666: 2, L0758: 2, L0366: 2, S0282: 1, H0255: 1, H0661: 1, S0358: 1, H0406: 1, H0550: 1, S0222: 1, H0441: 1, H0592: 1, H0632: 1, S0280: 1, H0590: 1, H0309: 1, H0327: 1, H0150: 1, H0123: 1, H0024: 1, H0014: 1, T0010: 1, H0355: 1, H0510: 1, H0375: 1, H0328: 1, T0006: 1, H0031: 1, L0143: 1, H0087: 1, S0112: 1, L0435: 1, S0142: 1, L0770: 1, L0773: 1, L0767: 1, L0794: 1, L0803: 1, L0805: 1, L0606: 1, L0659: 1, L0809: 1, L0791: 1, H0658: 1, S0328: 1, S0380: 1, L0749: 1, L0756: 1, L0777: 1 and S0436: 1. AR104: 17, AR033: 17, AR060: 15, AR061: 9, AR053: 7, AR089: 4, AR052: 4, AR039: 3, AR096: 2 L0438: 7, L0769: 4,			L0605: 3, H0619: 2, S0010: 2, H0050: 2, S0051: 2, H0644: 2, S0344: 2, L0646: 2, L0775: 2, L0776: 2, L0666: 2, L0758: 2, L0366: 2, S0282: 1, H0255: 1, H0661: 1, S0358: 1, H0406: 1, H0550: 1, S0222: 1, H0441: 1, H0592: 1, H0632: 1, S0280: 1, H0590: 1, H0309: 1, H0327: 1, H0150: 1, H0123: 1, H0024: 1, H0014: 1, T0010: 1, H0355: 1, H0510: 1, H0375: 1, H0328: 1, T0006: 1, H0031: 1, L0143: 1, H0087: 1, S0112: 1, L0435: 1, S0142: 1, L0770: 1, L0773: 1, L0767: 1, L0794: 1, L0803: 1, L0805: 1, L0606: 1, L0659: 1, L0809: 1, L0791: 1, H0658: 1, S0328: 1, S0380: 1, L0749: 1, L0756: 1, L0777: 1 and S0436: 1. AR104: 17, AR033: 17, AR060: 15, AR061: 9, AR053: 7, AR089: 4, AR052: 4, AR039: 3, AR096: 2 L0438: 7, L0769: 4,		161015, 164009, 168461, 168461, 168461, 180721, 180840, 191181, 193235, 209901, 232600, 259700, 259770, 600045, 600319, 600528, 601884		225-252, 181-202
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1000	HDQDF85	881146	1010	227 - 1615	2415	Ser-2 to Ser-7, Gly-44 to Asp-50, Ala-60 to Lys-70.	L0439: 4, L0777: 3, S0222: 2, H0599: 2, H0052: 2, H0039: 2, S0038: 2, L0662: 2, L0745: 2, L0747: 2, L0756: 2, S6024: 1, H0305: 1, H0441: 1, H0097: 1, T0082: 1, S0010: 1, H0196: 1, H0327: 1, H0620: 1, H0408: 1, S6028: 1, H0328: 1, T0006: 1, L0770: 1, L0650: 1, L0774: 1, L0775: 1, L0375: 1, L0806: 1, L0809: 1, L0792: 1, H0682: 1 and L0750: 1.	16			410-426, 186-202
							AR039: 17, AR033: 9, AR104: 9, AR096: 9, AR053: 9, AR089: 8, AR055: 8, AR061: 6, AR060: 6, AR052: 6, L0439: 8, H0457: 5, L0438: 5, H0521: 5, L0748: 4, H0090: 3, S0142: 3, L0761: 3, L0415: 2, H0663: 2, S0344: 2, L0644: 2, L0794: 2, L0776: 2, L0665: 2, S0052: 2, L0751: 2, L0756: 2, H0662: 1, S0444: 1, H0637: 1, S0278: 1, H0550: 1, H0614: 1, H0586: 1, H0486: 1, T0040: 1,				

1001	HRAAA79	881197	1011	56 - 433	2416	Ala-31 to Gly-45.	<p>H0318: 1, T0001: 1, H0009: 1, H0620: 1, S0051: 1, H0179: 1, H0271: 1, H0416: 1, H0688: 1, H0617: 1, H0135: 1, H0087: 1, H0625: 1, H0561: 1, S0002: 1, S0426: 1, L0763: 1, L0769: 1, L0773: 1, L0766: 1, L0381: 1, L0804: 1, S0374: 1, H0593: 1, H0690: 1, H0672: 1, H0651: 1, H0214: 1, H0436: 1, S0104: 1, S0028: 1, L0758: 1, L0608: 1 and L0362: 1.</p> <p>AR039: 4, AR096: 4, AR060: 4, AR052: 4, AR053: 3, AR089: 3, AR033: 3, AR104: 2, AR055: 2, AR061: 1, S0126: 9, L0777: 5, L0752: 4, H0013: 3, L0775: 3, H0144: 3, L0779: 3, L0731: 3, S0003: 2, L0770: 2, L0766: 2, L0659: 2, L0439: 2, L0754: 2, L0757: 2, L0758: 2, H0624: 1, H0171: 1, S0040: 1, H0657: 1, S0420: 1, S0354: 1, S0358: 1, H0619: 1, H0333: 1, H0331: 1, H0156: 1,</p>						108-126, 84-100, 2-18
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1002	HEOQC11	881219	1012	78 - 2348	2417	Lys-14 to Thr-23, His-28 to Arg-35, Pro-42 to Asn-47, Thr-132 to Phe-140, Gln-187 to Glu-196, Gly-216 to Ser-235, Thr-269 to Phe-275, Ile-294 to Lys-303, Ser-313 to Lys-318, Leu-358 to Phe-363, Gly-405 to Asp-416, Ser-441 to Glu-450, Gln-516 to Pro-529, Val-558 to Thr-570, Leu-573 to Arg-578, Gln-583 to Gln-589, Asp-614 to Asn-623, Asp-629 to Phe-642,	L0021: 1, H0575: 1, H0590: 1, H0052: 1, T0110: 1, H0011: 1, H0266: 1, H0165: 1, H0412: 1, H0413: 1, H0494: 1, L0800: 1, L0764: 1, L0771: 1, L0662: 1, L0774: 1, L0805: 1, L0776: 1, L0519: 1, L0666: 1, L0664: 1, L0665: 1, H0519: 1, H0555: 1, S0027: 1, L0748: 1, L0750: 1, S0436: 1, L0601: 1 and H0506: 1.	22			318-335, 451-467, 152-168, 243-259
						Lys-14 to Thr-23, His-28 to Arg-35, Pro-42 to Asn-47, Thr-132 to Phe-140, Gln-187 to Glu-196, Gly-216 to Ser-235, Thr-269 to Phe-275, Ile-294 to Lys-303, Ser-313 to Lys-318, Leu-358 to Phe-363, Gly-405 to Asp-416, Ser-441 to Glu-450, Gln-516 to Pro-529, Val-558 to Thr-570, Leu-573 to Arg-578, Gln-583 to Gln-589, Asp-614 to Asn-623, Asp-629 to Phe-642,	AR096: 4, AR089: 3, AR039: 3, AR104: 3, AR053: 3, AR052: 2, AR033: 2, AR061: 2, AR060: 2, AR055: 1 H0457: 8, H0556: 6, L0751: 6, H0618: 4, H0318: 4, H0038: 3, L0766: 3, S0442: 2, S0354: 2, H0553: 2, H0616: 2, H0100: 2, L0764: 2, L0662: 2, L0659: 2, L0783: 2, L0528: 2, S0152: 2, L0756: 2, L0731: 2, L0587: 2, H0667: 2, H0543: 2, H0295: 1, H0294: 1, S0134: 1, H0657: 1, S0418: 1, L0617: 1, S0376: 1, S0444: 1, S0360: 1,				

1003	HJKA08	881310	1013	625 - 170	2418	Lys-651 to Val-679, Lys-700 to Ser-706, Pro-714 to Ala-738, Asp-747 to Gly-753.	H0619: 1, H0369: 1, H0370: 1, T0039: 1, H0427: 1, H0581: 1, H0597: 1, H0123: 1, H0024: 1, H0200: 1, H0051: 1, H0510: 1, H0266: 1, H0271: 1, H0290: 1, H0428: 1, H0424: 1, H0030: 1, H0644: 1, H0181: 1, H0617: 1, H0032: 1, H0165: 1, H0316: 1, H0135: 1, H0040: 1, H0634: 1, H0087: 1, H0264: 1, L0770: 1, L0627: 1, L0372: 1, L0646: 1, L0768: 1, L0775: 1, L0658: 1, L0809: 1, L0665: 1, H0701: 1, H0699: 1, S0126: 1, H0684: 1, H0539: 1, S0037: 1, S0027: 1, L0748: 1, L0749: 1, L0752: 1, L0759: 1, L0596: 1, L0599: 1, L0593: 1, S0192: 1 and H0422: 1. AR055: 4, AR052: 4, AR060: 3, AR053: 3, AR104: 3, AR096: 3, AR061: 3, AR039: 3, AR033: 3, AR089: 2, L0777: 10, L0748: 9, L0666: 8, H0457: 6, L0758: 6, L0438: 5, L0750: 5,					44-60, 134-150
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1005	HPJCS44	881430	1015	29 - 454	2420	His-35 to Ala-40, His-44 to Leu-56, Pro-64 to Pro-71, Arg-95 to Asn-110, Ser-114 to Pro-132.	AR055: 13, AR033: 12, AR060: 10, AR089: 9, AR061: 8, AR096: 7, AR052: 5, AR053: 5, AR104: 4, AR039: 3 H0318: 3, H0046: 3, L0742: 3, L0747: 3, S0046: 2, H0455: 2, L0748: 2, S0342: 1, H0662: 1, S0358: 1, S0444: 1, S0278: 1, H0370: 1, T0040: 1, S0280: 1, H0565: 1, L0471: 1, H0014: 1, S0388: 1, H0266: 1, H0288: 1, H0124: 1, H0708: 1, H0040: 1, H0625: 1, H0641: 1, H0647: 1, L0518: 1, S0374: 1, H0539: 1, S0152: 1, H0522: 1, H0696: 1, S0390: 1, L0750: 1, L0752: 1, L0731: 1, L0592: 1 and H0423: 1.			72-93
1006	HTAIV82	881434	1016	267 - 581	2421		AR033: 2, AR089: 1, AR060: 1, AR061: 0, AR039: 0 H0265: 1, H0556: 1, H0574: 1, H0635: 1 and H0423: 1.			55-71, 79- 95
1007	HACBW10	881438	1017	1112 - 1414	2422	His-22 to Thr-28, His-89 to Cys-96.	AR039: 38, AR052: 26, AR053: 25, AR104: 21,			66-87



						AR089: 21, AR096: 21, AR033: 21, AR055: 20, AR060: 14, AR061: 11 L0439: 13, L0438: 11, L0769: 10, L0766: 7, L0749: 5, L0666: 3, L0352: 3, L0748: 3, L0779: 3, H0637: 2, H0052: 2, H0194: 2, L0351: 2, L0770: 2, L0761: 2, L0783: 2, L0789: 2, L0790: 2, L0664: 2, L0747: 2, L0758: 2, L0759: 2, H0445: 2, L0592: 2, H0624: 1, H0556: 1, H0686: 1, T0049: 1, H0657: 1, H0483: 1, H0663: 1, H0638: 1, S0420: 1, S0376: 1, S0007: 1, H0619: 1, H0393: 1, L0717: 1, H0441: 1, H0643: 1, S0280: 1, H0253: 1, H0318: 1, S0388: 1, T0010: 1, H0271: 1, H0428: 1, H0424: 1, H0606: 1, L0456: 1, H0056: 1, H0494: 1, S0352: 1, H0538: 1, H0529: 1, L0763: 1, L0772: 1, L0378: 1, L0657: 1, L0658: 1, L0659: 1, H0144: 1, H0693: 1, H0520: 1, H0690: 1 H0658: 1 H0539:
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1008	HUFBN79	881443	1018	20 - 610	2423	Phe-5 to Ala-19, Ser-29 to Asp-41, Leu-49 to Val-57, Glu-68 to Arg-77, Pro-163 to Glu-171.	1, H0521: 1, H0436: 1, S0037: 1, S0206: 1, L0740: 1, L0754: 1, L0593: 1, S0011: 1, H0665: 1, S0242: 1, H0423: 1 and H0422: 1. AR053: 3, AR039: 3, AR052: 2, AR089: 2, AR096: 2, AR055: 2, AR061: 1, AR033: 1, AR060: 0, AR104: 0 L0748: 9, S0007: 6, L0754: 5, S0134: 3, H0457: 3, L0771: 3, L0666: 3, L0749: 3, H0657: 2, S0420: 2, S0358: 2, S0360: 2, S0222: 2, L0761: 2, L0764: 2, L0766: 2, L0607: 2, L0809: 2, H0648: 2, L0742: 2, L0759: 2, H0506: 2, H0686: 1, H0583: 1, S0116: 1, H0450: 1, S0045: 1, H0640: 1, H0351: 1, H0600: 1, H0574: 1, L0021: 1, H0575: 1, H0274: 1, H0581: 1, T0003: 1, H0014: 1, H0099: 1, H0179: 1, T0023: 1, H0673: 1, H0264: 1, H0102: 1, H0494: 1, H0561: 1, H0538: 1, L0598: 1, L0637: 1, L0667: 1, L0772:					169-191, 99-115
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1009	HCFCN07	881450	1019	66 - 575	2424	Ser-48 to Trp-54, Pro-77 to Phe-84, Leu-89 to Leu-103, Met-110 to Asp-132, Glu-165 to Glu-170.	1, L0373: 1, L0646: 1, L0800: 1, L0662: 1, L0364: 1, L0649: 1, L0650: 1, L0653: 1, L0655: 1, L0542: 1, L0526: 1, L0789: 1, L0663: 1, L0664: 1, L0665: 1, L0565: 1, H0520: 1, S0126: 1, H0659: 1, H0658: 1, H0660: 1, H0651: 1, H0521: 1, H0696: 1, L0744: 1, L0439: 1, L0751: 1, L0745: 1, L0746: 1, L0747: 1, L0756: 1, L0779: 1, L0777: 1, L0755: 1, L0731: 1, L0588: 1, L0581: 1, L0361: 1, S0242: 1, H0542: 1, UNKWN: 1, L0600: 1 and H0352: 1. AR089: 12, AR033: 9, AR052: 8, AR053: 7, AR039: 7, AR055: 6, AR096: 5, AR060: 5, AR061: 2, AR104: 2 L0747: 8, L0752: 7, S0358: 6, L0758: 6, H0521: 5, L0740: 5, L0757: 5, L0771: 4, L0749: 4, L0731: 4, L0362: 4, S0360: 3, H0486: 3, H0551: 3, L0766: 3, L0775: 3, S0376: 2,					54-78, 17- 40
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1010	HLWDZ66	881490	1020	219 - 683	2425	Pro-8 to Ser-18, Thr-59 to Gly-66, Asn-107 to Gln-112, Ser-136 to Glu-152.	S0424: 1, H0677: 1 and H0506: 1. AR096: 4, AR033: 4, AR089: 3, AR053: 3, AR052: 3, AR060: 3, AR039: 2, AR104: 1, AR055: 1, AR061: 1 L0759: 7, L0803: 6, L0666: 4, L0805: 3, L0756: 3, L0362: 3, L0646: 2, L0794: 2, L0766: 2, L0659: 2, H0144: 2, L0438: 2, H0520: 2, L0779: 2, L0596: 2, H0423: 2, L0600: 2, H0170: 1, S0114: 1, H0650: 1, S0358: 1, S0360: 1, H0329: 1, S0222: 1, H0497: 1, T0040: 1, H0036: 1, H0051: 1, H0687: 1, S0214: 1, H0615: 1, H0428: 1, H0622: 1, H0553: 1, H0598: 1, H0040: 1, H0634: 1, L0060: 1, T0041: 1, L0773: 1, L0774: 1, L0657: 1, L0809: 1, L0789: 1, L0664: 1, H0519: 1, S0126: 1, H0689: 1, H0435: 1, H0670: 1, H0555: 1, L0748: 1, L0439: 1, L0731: 1, S0031: 1 and S0434: 1.				65-81
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1011	HEONP58	881498	1021	80 - 568	2426	Trp-114 to Ala-120, Thr-147 to Asp-153.	AR039: 3, AR033: 3, AR089: 2, AR061: 2, AR096: 2, AR052: 2, AR055: 2, AR060: 1, AR104: 1, AR053: 1 L0809: 3, L0769: 2, L0764: 2, L0773: 2, L0766: 2, L0774: 2, L0659: 2, L0438: 2, S0328: 2, L0731: 2, L0603: 2, H0583: 1, H0549: 1, H0438: 1, H0586: 1, H0486: 1, H0052: 1, H0457: 1, H0553: 1, H0561: 1, L0640: 1, L0770: 1, L0638: 1, L0761: 1, L0800: 1, L0644: 1, L0771: 1, L0662: 1, L0767: 1, L0768: 1, L0775: 1, L0655: 1, L0559: 1, L0518: 1, L0783: 1, L0789: 1, L0790: 1, L0664: 1, S0380: 1, S0406: 1, L0777: 1 and L0757: 1.			91-114, 3- 23, 59-75
1012	HMAGN19	881531	1022	694 - 1074	2427	Pro-12 to Ala-23, Thr-90 to Thr-95.	AR096: 4, AR052: 3, AR039: 2, AR053: 2, AR089: 1, AR104: 1, AR060: 1, AR033: 1, AR061: 1, AR055: 0 S0045: 6, S0028: 5, S0278: 2, S0031: 2, S0282: 1, S0046: 1, S6026: 1, H0550:			95-121, 32-48

1013	HFCAP42	881569	1023	640 - 1227	2428		1, S0222: 1, H0013: 1, H0318: 1, H0246: 1, H0271: 1, S0052: 1, S0428: 1, S0037: 1 and L0592: 1. AR033: 2, AR104: 1, AR053: 1, AR052: 1, AR089: 1, AR060: 1, AR061: 0, AR039: 0, AR055: 0, AR096: 0 H0545: 7, H0617: 7, S0360: 4, H0658: 4, H0494: 3, H0295: 2, S0212: 2, H0661: 2, S0358: 2, H0606: 2, S0440: 2, L0769: 2, L0794: 2, L0783: 2, L0749: 2, L0601: 2, H0713: 1, H0717: 1, H0716: 1, H0294: 1, S0418: 1, S0356: 1, H0733: 1, S0045: 1, S0132: 1, S0278: 1, H0586: 1, L0622: 1, H0599: 1, H0581: 1, S0049: 1, H0052: 1, H0309: 1, H0544: 1, H0150: 1, H0009: 1, H0564: 1, H0620: 1, S0388: 1, H0375: 1, H0615: 1, H0031: 1, S0036: 1, H0059: 1, S0450: 1, H0633: 1, S0426: 1, L0371: 1, L0770: 1, L0645: 1, L0768: 1, L0804: 1,	1q31	134580, 145001, 145260, 150292, 208250, 226450, 600105, 600759, 600995, 601652	84-101, 175-191	
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1014	HWBBT49	881570	1024	70 - 1095	2429	Glu-96 to Lys-106.	<p>L0775: 1, L0806: 1, L0653: 1, L0790: 1, L0666: 1, H0547: 1, S0126: 1, H0689: 1, H0539: 1, S0112: 1 and L0740: 1.</p> <p>AR096: 1, AR052: 1, AR033: 0, AR061: 0, AR089: 0, AR055: 0, AR053: 0, AR039: 0, AR060: 0, AR104: 0</p> <p>L0439: 6, S0002: 5, S0360: 3, H0580: 3, H0575: 3, S0346: 3, L0483: 3, L0804: 3, L0748: 3, H0597: 2, S0144: 2, L0662: 2, L0517: 2, L0665: 2, L0438: 2, L0754: 2, L0779: 2, S0242: 2, S0420: 1, S0356: 1, H0574: 1, H0042: 1, H0570: 1, H0510: 1, H0375: 1, S6028: 1, H0622: 1, L0194: 1, H0634: 1, H0413: 1, S0464: 1, S0344: 1, L0638: 1, L0761: 1, L0643: 1, L0493: 1, L0659: 1, L0783: 1, L0530: 1, L0666: 1, S0374: 1, H0593: 1, S0126: 1, H0435: 1, H0521: 1, H0478: 1, L0749: 1, L0777: 1, L0731: 1, H0445: 1,</p>				2-23, 52-68, 128-144
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1015	HDPBT62	881683	1025	90 - 473	2430	Asn-31 to Thr-37, Arg-83 to Asn-88.	S0434: 1, S0194: 1 and H0543: 1. AR039: 45, AR053: 40, AR104: 30, AR096: 29, AR052: 29, AR033: 27, AR089: 23, AR055: 20, AR060: 16, AR061: 14 H0521: 3, H0457: 2, H0497: 1, H0014: 1, H0179: 1, L0766: 1, H0698: 1, . H0542: 1 and H0506: 1.			43-59, 90- 106
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1019	HHEBM09	881890	1029	132 - 461	2434	Leu-22 to Ser-27.	AR033: 5, AR060: 4, AR089: 4, AR061: 3, AR039: 3, AR104: 3 L0758: 5, S0358: 4, L0439: 4, S0356: 3, L0751: 3, L0747: 3, L0779: 3, H0265: 2, H0381: 2, H0331: 2, H0052: 2, H0009: 2, L0157: 2, H0617: 2, L0769: 2, L0806: 2, L0783: 2, L0750: 2, S0436: 2, H0556: 1, H0685: 1, L0619: 1, L0005: 1, S0444: 1, H0619: 1, H0587: 1, H0566: 1, H0051: 1, H0083: 1, T0006: 1, L0055: 1, H0316: 1, H0135: 1, H0616: 1, H0551: 1, H0494: 1, L0372: 1, L0648: 1, L0768: 1, L0803: 1, L0379: 1, L0807: 1, L0659: 1, L0793: 1, L0665: 1, H0520: 1, H0547: 1, H0689: 1, H0539: 1, H0522: 1, H0696: 1, S3012: 1, S3014: 1, L0748: 1, L0777: 1, H0543: 1 and H0506: 1.			132-149, 105-121, 59-75
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1020	HDPV17	881907	1030	41 - 739	2435	Ser-62 to Ala-69, Gly-77 to Gly-98.	AR061: 1, AR060: 1 L0748: 3, S0250: 1, L0751: 1 and H0542: 1. AR060: 1, AR055: 1, AR089: 1, AR061: 1, AR033: 0, AR096: 0, AR039: 0, AR052: 0, AR053: 0, AR104: 0 L0766: 3, H0635: 1, H0318: 1, H0581: 1, H0457: 1, H0179: 1, H0560: 1, H0561: 1, L0764: 1, L0794: 1, L0803: 1, L0775: 1, L0806: 1, L0790: 1, L0791: 1, L0792: 1, L0665: 1, H0521: 1, L0779: 1 and L0758: 1.	180-196, 118-134, 8-24, 44- 60	
1021	HBGNO49	881968	1031	86 - 496	2436	Pro-16 to Gly-24, Glu-41 to Phe-49, Glu-81 to Gln-95, Arg-104 to Ser-114.	AR052: 18, AR055: 16, AR033: 14, AR053: 12, AR104: 11, AR089: 9, AR096: 8, AR061: 8, AR060: 8, AR039: 0 H0617: 3 and H0428: 1. AR055: 1, AR060: 1, AR039: 0, AR052: 0, AR061: 0, AR089: 0, AR096: 0, AR053: 0, AR033: 0, AR104: 0 L0766: 34, S0360: 7,	50-72	
1022	HWAFAQ40	882003	1032	149 - 562	2437	Met-1 to Ser-12, Pro-28 to Cys-39.	AR055: 1, AR060: 1, AR039: 0, AR052: 0, AR061: 0, AR089: 0, AR096: 0, AR053: 0, AR033: 0, AR104: 0 L0766: 34, S0360: 7,	82-105	

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1023	HTLGZ03	882014	1033	1117 - 1545	2438	Ser-10 to Pro-17.	H0622: 1, H0674: 1, H0316: 1, H0551: 1, H0264: 1, H0100: 1, H0494: 1, H0509: 1, S0002: 1, S0426: 1, L0369: 1, L0770: 1, L0769: 1, L0761: 1, L0772: 1, L0644: 1, L0764: 1, L0521: 1, L0662: 1, L0804: 1, L0774: 1, L0655: 1, L0527: 1, L0663: 1, S0374: 1, H0520: 1, H0547: 1, H0593: 1, S0126: 1, H0660: 1, S0328: 1, H0539: 1, S0380: 1, H0522: 1, L0740: 1, L0754: 1, L0605: 1, L0608: 1, L0362: 1, L0366: 1, S0026: 1, H0667: 1, H0136: 1, H0542: 1, S0424: 1 and H0506: 1. AR055: 11, AR060: 6, AR033: 6, AR061: 5, AR052: 5, AR089: 5, AR053: 4, AR096: 4, AR104: 3, AR039: 2 H0253: 4, H0584: 3, H0457: 3, L0005: 2, H0587: 2, H0599: 2, H0581: 2, H0539: 2, H0521: 2, S0040: 1, H0583: 1, H0657: 1, H0484: 1, H0254: 1, H0402:					114-142
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1026	HCEMU86	882164	1036	347 - 787	2441	Pro-83 to Thr-88.	1, S0010: 1, L0040: 1, H0012: 1, H0620: 1, H0014: 1, S0048: 1, T0010: 1, H0673: 1, H0038: 1, H0494: 1, L0770: 1, L0769: 1, L0662: 1, L0806: 1, L0783: 1, L0663: 1, L0664: 1, S0330: 1, H0478: 1, L0741: 1, L0779: 1 and S0031: 1. AR104: 6, AR033: 6, AR055: 4, AR039: 3, AR096: 3, AR060: 3, AR089: 3, AR061: 2, AR053: 2, AR052: 2 L0439: 21, L0438: 12, L0769: 9, T0010: 6, H0052: 5, L0776: 4, L0805: 3, S0126: 3, L0741: 3, L0589: 3, H0261: 2, T0006: 2, L0455: 2, L0659: 2, H0519: 2, L0742: 2, L0748: 2, L0751: 2, L0592: 2, S0276: 2, H0583: 1, L0418: 1, S0298: 1, S0001: 1, S0400: 1, L0394: 1, S0222: 1, H0455: 1, H0331: 1, H0156: 1, T0082: 1, N0006: 1, H0570: 1, S6028: 1, H0644: 1, S0036: 1, H0100: 1, L0351: 1, S0352: 1, L0598:					95-118, 51-73, 117-137, 6-23, 31- 48
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1027	HKAEP60	882197	1037	137 - 496	2442	Met-2 to Asn-7, Arg-21 to Tyr-29, Gln-33 to Ile-41, Ala-103 to Asp-120.	1, L0369: 1, L0638: 1, L0793: 1, H0520: 1, L0777: 1, L0752: 1, L0753: 1, L0758: 1, L0593: 1 and L0366: 1.				40-73, 73- 99
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				2, H0156: 2, H0581: 2, H0123: 2, H0051: 2, H0510: 2, H0634: 2, H0616: 2, S0440: 2, L0598: 2, L0369: 2, L0646: 2, L0775: 2, L0651: 2, L0653: 2, L0807: 2, L0665: 2, H0547: 2, H0519: 2, H0659: 2, S0378: 2, S0380: 2, H0704: 2, S0044: 2, S0027: 2, L0754: 2, L0745: 2, L0599: 2, L0362: 2, L0601: 2, H0653: 2, H0423: 2, T0002: 1, H0716: 1, S6024: 1, T0049: 1, S0218: 1, H0656: 1, H0341: 1, H0664: 1, H0638: 1, S0420: 1, S0356: 1, S0444: 1, H0208: 1, S0045: 1, S0132: 1, H0645: 1, L0717: 1, H0351: 1, S0278: 1, H0369: 1, S0222: 1, H0370: 1, H0357: 1, H0587: 1, H0331: 1, H0486: 1, H0635: 1, H0002: 1, H0042: 1, H0122: 1, H0706: 1, S0346: 1, S0474: 1, H0052: 1, H0263: 1, T0115: 1, H0327: 1, H0530: 1, H0198: 1, H0023: 1, H0015: 1, H0239: 1, H0594: 1, S6028:								
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1028	HEORN16	882261	1038	431 - 1084	2443	Met-99 to Ala-114, Pro-138 to Arg-143, Thr-169 to Arg-176, Ser-207 to Pro-218.	S0460: 1. AR033: 4, AR089: 3, AR053: 2, AR060: 2, AR061: 2, AR055: 2, AR096: 1, AR052: 1, AR039: 0, AR104: 0 L0747: 5, L0749: 4, H0657: 3, H0553: 3, L0758: 3, S0040: 2, H0341: 2, L0789: 2, L0748: 2, L0779: 2, L0753: 2, H0542: 2, H0265: 1, H0669: 1, S0418: 1, H0370: 1, H0586: 1, H0497: 1, H0427: 1, H0036: 1, H0253: 1, H0457: 1, H0086: 1, H0081: 1, H0355: 1, S0338: 1, S0340: 1, H0039: 1, H0181: 1, S0366: 1, H0598: 1, H0135: 1, H0063: 1, H0412: 1, H0413: 1, H0652: 1, S0422: 1, S0002: 1, H0529: 1, L0369: 1, L0770: 1, L0772: 1, L0642: 1, L0771: 1, L0521: 1, L0381: 1, H0658: 1, H0666: 1, H0539: 1, H0521: 1, H0522: 1, S0044: 1, H0187: 1, H0436: 1, L0741: 1, L0746: 1, L0777: 1, L0780: 1, H0343: 1, H0595:				40-61, 1- 22, 61-77
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1029	HKGBI74	882285	1039	183 - 530	2444			1, H0707: 1, S0434: 1 and S0424: 1. AR052: 4, AR096: 4, AR053: 4, AR104: 3, AR039: 3, AR089: 2, AR055: 2, AR033: 2, AR060: 1, AR061: 1 H0549: 1 and H0538: 1.			42-58, 98- 114
1030	HOSPA48	882296	1040	119 - 1126	2445	Ala-6 to Gly-11, Ser-20 to Ser-30, Ser-60 to Ser-65, Ser-157 to Glu-170, Lys-179 to Asp-184, Ser-285 to Val-290, Pro-306 to Ser-314.		AR053: 1, AR104: 1, AR052: 1, AR089: 1, AR061: 0, AR033: 0, AR096: 0, AR060: 0, AR039: 0, AR055: 0 S0003: 6, L0777: 4, L0752: 4, H0617: 3, H0553: 2, H0124: 2, L0804: 2, L0757: 2, H0662: 1, S0045: 1, H0266: 1, S0214: 1, H0598: 1, L0666: 1, S0126: 1, H0651: 1, L0588: 1 and H0422: 1.			317-336, 131-147, 30-46, 201-217
1031	HWHQN1 6	882307	1041	124 - 1023	2446	Met-1 to Tyr-17.		AR055: 3, AR060: 3, AR033: 3, AR061: 2, AR104: 2, AR053: 1, AR039: 1, AR089: 1, AR096: 1, AR052: 1 L0748: 12, H0521: 11, L0755: 9, S0474: 8, L0662: 7, S0436: 7, L0596: 6,			213-245, 184-211, 100-130, 133-156, 247-267, 162-181

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	S0342: 1, H0713: 1, H0716: 1, H0295: 1, S0218: 1, S0116: 1, S0212: 1, H0484: 1, H0664: 1, H0662: 1, S0418: 1, S0442: 1, S0354: 1, H0729: 1, H0722: 1, H0733: 1, L0717: 1, H0431: 1, H0600: 1, H0587: 1, H0333: 1, H0331: 1, H0559: 1, H0486: 1, H0013: 1, H0250: 1, H0427: 1, S0280: 1, L0021: 1, H0599: 1, H0036: 1, L0563: 1, H0581: 1, H0173: 1, H0545: 1, H0457: 1, L0041: 1, H0150: 1, H0123: 1, H0081: 1, H0050: 1, H0197: 1, T0010: 1, H0375: 1, H0267: 1, H0188: 1, S0250: 1, H0032: 1, H0040: 1, H0616: 1, H0087: 1, H0413: 1, H0100: 1, S0112: 1, H0560: 1, H0561: 1, H0131: 1, S0144: 1, S0142: 1, S0344: 1, L0631: 1, L0770: 1, L0772: 1, L0646: 1, L0643: 1, L0771: 1, L0773: 1, L0363: 1, L0766: 1, L0650: 1, L0375: 1, L0376: 1, L0654: 1, L0655: 1, L0658: 1,	
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1032	HRDEP41	882351	1042	33 - 500	2447	Gly-48 to Tyr-53, His-95 to Trp-117, Ser-123 to Gln-128.	L0382: 1, L0543: 1, L0664: 1, S0428: 1, H0690: 1, H0682: 1, H0670: 1, H0660: 1, H0648: 1, H0710: 1, H0518: 1, S0152: 1, H0522: 1, S0406: 1, H0478: 1, L0611: 1, S0390: 1, S0037: 1, S0206: 1, L0743: 1, L0758: 1, S0031: 1, S0260: 1, H0595: 1, L0588: 1, L0604: 1, H0423: 1 and H0422: 1.					63-89, 2- 18
							AR033: 12, AR104: 7, AR055: 5, AR060: 3, AR053: 3, AR052: 3, AR096: 3, AR089: 2, AR061: 2, AR039: 0 S0022: 6, L0770: 6, L0769: 6, L0758: 5, S0051: 4, H0521: 4, L0747: 4, L0756: 4, H0638: 3, H0124: 3, L0794: 3, L0805: 3, S0278: 2, S0222: 2, H0052: 2, H0327: 2, H0100: 2, L0789: 2, L0438: 2, L0439: 2, L0751: 2, L0777: 2, L0591: 2, S0282: 1, S0356: 1, L0717: 1, H0441: 1, H0587: 1, L0163: 1, H0051: 1, S0048: 1, H0594: 1,					

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1033	HFVIK60	882352	1043	589 - 999	2448			H0328: 1, L0455: 1, S0036: 1, S0038: 1, S0344: 1, L0761: 1, L0775: 1, L0375: 1, L0776: 1, L0659: 1, L0809: 1, L0647: 1, L0750: 1, L0753: 1 and H0445: 1.	7q22	126650, 126650, 154276, 173360, 173360, 602136, 602136, 602136, 602447	73-102, 2- 25	
1034	HTJAC60	882355	1044	78 - 1106	2449	Met-1 to Pro-6, Arg-14 to Thr-29, Thr-41 to Thr-48, Ser-50 to Leu-58, Glu-82 to Arg-90, Asn-185 to Lys-190, Gln-217 to Gln-222, Gln-237 to Gly-243,		AR055: 10, AR039: 7, AR060: 5, AR061: 5, AR052: 5, AR033: 4, AR096: 4, AR053: 4, AR089: 3, AR104: 1 L0771: 4, L0766: 3, L0803: 3, L0789: 3, S0114: 1, H0341: 1, H0662: 1, S0354: 1, S0360: 1, S0046: 1, H0619: 1, H0393: 1, H0036: 1, H0590: 1, H0014: 1, L0761: 1, L0772: 1, L0764: 1, L0804: 1, L0774: 1, S3014: 1, L0748: 1 and L0779: 1.			134-156, 305-323, 271-287, 105-121, 166-182	

						Lys-332 to Asp-343.	L0744: 2, L0754: 2, L0747: 2, L0749: 2, S0436: 2, H0422: 2, H0265: 1, H0717: 1, H0716: 1, S6024: 1, H0341: 1, H0484: 1, H0192: 1, S0360: 1, S0408: 1, T0008: 1, H0580: 1, H0393: 1, S0280: 1, H0196: 1, H0544: 1, H0545: 1, H0086: 1, H0009: 1, H0123: 1, H0620: 1, H0024: 1, S0362: 1, S0051: 1, H0188: 1, H0284: 1, H0428: 1, H0606: 1, H0135: 1, H0063: 1, H0487: 1, S0440: 1, L0768: 1, L0806: 1, L0653: 1, L0791: 1, L0666: 1, L0438: 1, H0672: 1, H0539: 1, S3014: 1, L0743: 1, L0752: 1, H0444: 1, H0423: 1 and H0677: 1.				
1035	HMAIH15	882500	1045	105 - 734	2450	Gln-32 to Leu-40, Asn-177 to Trp-182.	AR096: 2, AR039: 2, AR033: 2, AR060: 2, AR053: 1, AR089: 1, AR061: 0, AR055: 0, AR052: 0, AR104: 0 S0278: 1				186-210, 1-24, 76- 102, 137- 154, 38- 56, 58-77, 156-172
1036	HTTDZ74	882514	1046	70 - 618	2451		AR033: 248, AR061: 210, AR060: 198, AR089: 122,				16-47, 61- 84, 91-

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	S0002: 2, L0598: 2, H0529: 2, L0640: 2, L0637: 2, L0646: 2, L0766: 2, L0776: 2, L0666: 2, L0665: 2, H0520: 2, H0519: 2, S0126: 2, S0152: 2, S0406: 2, L0748: 2, L0596: 2, L0599: 2, S0470: 1, H0717: 1, L0778: 1, S0212: 1, S0001: 1, S0418: 1, S0354: 1, S0376: 1, S0444: 1, S0408: 1, S0410: 1, S0468: 1, H0619: 1, L0717: 1, S0278: 1, H0369: 1, S0222: 1, S6014: 1, H0409: 1, H0587: 1, H0574: 1, H0632: 1, T0039: 1, H0427: 1, H0042: 1, S0346: 1, H0421: 1, T0115: 1, L0040: 1, H0231: 1, H0546: 1, H0545: 1, T0010: 1, S0214: 1, H0252: 1, H0553: 1, H0644: 1, H0124: 1, H0316: 1, H0598: 1, S0036: 1, H0591: 1, H0551: 1, H0477: 1, H0264: 1, H0100: 1, S0014: 1, H0625: 1, S0144: 1, S0422: 1, L0762: 1, L0769: 1, L0638: 1, L0667: 1, L0643: 1, L0764: 1, L0649: 1,						
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1038	HLHAN77	882559	1048	144 - 581	2453	Phe-17 to Asp-37, Thr-51 to Leu-67, Asn-70 to Thr-78.	L0803: 1, L0775: 1, L0375: 1, L0806: 1, L0805: 1, L0652: 1, L0653: 1, L0655: 1, L0792: 1, L0664: 1, H0144: 1, H0711: 1, H0684: 1, H0660: 1, H0672: 1, H0521: 1, H0696: 1, H0627: 1, L0742: 1, L0777: 1, L0752: 1, S0031: 1, S0436: 1, L0589: 1, L0591: 1, L0608: 1, L0594: 1, H0653: 1, H0667: 1, H0543: 1, H0423: 1 and S0424: 1.							76-108
1039	HFPKI70	882564	1049	107 -	2454	Arg-24 to His-31,	AR096: 2, AR055: 1, AR053: 1, AR089: 1, AR060: 1, AR039: 0, AR052: 0, AR061: 0, AR033: 0 T0006: 2, L0439: 2, L0750: 2, L0785: 1, S0360: 1, S0222: 1, H0586: 1, L0622: 1, H0620: 1, H0024: 1, H0594: 1, H0606: 1, L0770: 1, L0771: 1, L0794: 1, L0649: 1, L0805: 1, L0653: 1, L0659: 1, L0791: 1, L0666: 1, L0753: 1 and L0758: 1.							29-50, 63-

			475		Leu-56 to Leu-64, Ser-96 to Lys-102, Leu-114 to His-123.	AR089: 7, AR053: 6, AR060: 5, AR052: 5, AR033: 5, AR061: 5, AR104: 4, AR039: 1 H0457: 2, S0222: 1, H0587: 1, H0013: 1, S0010: 1, H0373: 1 and H0521: 1.			81
1040	HDRMD17	882582	1050	116 - 523	Lys-68 to Gly-76.	AR053: 1, AR033: 1, AR104: 1, AR089: 1, AR060: 0, AR061: 0, AR096: 0, AR055: 0, AR052: 0, AR039: 0			17-40, 41- 66, 102- 118, 84- 100
1041	HEMDM1 6	882648	1051	15 - 677	Phe-10 to Lys-15.	AR089: 18, AR096: 17, AR060: 16, AR104: 13, AR033: 13, AR039: 12, AR052: 11, AR053: 9, AR055: 7, AR061: 5 L0759: 8, L0731: 7, H0521: 5, L0005: 4, S0358: 3, L0157: 3, L0757: 3, S0046: 2, H0494: 2, L0662: 2, L0740: 2, L0755: 2, H0657: 1, H0341: 1, H0663: 1, H0638: 1, S0376: 1, S0132: 1, H0549: 1, H0586: 1, H0590: 1, H0024: 1, H0071: 1, H0083: 1, H0252: 1, H0090: 1, H0591: 1,			162-178

1042	HODGL52	882663	1052	62 - 517	2457	Ser-120 to Ala-125, Glu-143 to Tyr-152.	<p>H0551: 1, H0059: 1, H0529: 1, L0389: 1, L0775: 1, L0776: 1, L0783: 1, L0665: 1, L0438: 1, H0547: 1, H0435: 1, S0378: 1, S0037: 1, L0439: 1, S0434: 1, L0596: 1, L0592: 1, L0604: 1, H0667: 1, H0543: 1 and H0422: 1.</p> <p>AR089: 13, AR055: 11, AR060: 9, AR096: 8, AR033: 7, AR061: 7, AR053: 5, AR052: 5, AR039: 5, AR104: 2, H0046: 6, L0770: 6, H0402: 5, L0749: 5, L0731: 5, S0358: 4, L0771: 4, L0740: 4, H0617: 3, L0769: 3, L0783: 3, H0670: 3, L0747: 3, S0192: 3, S0476: 2, H0549: 2, H0581: 2, H0271: 2, H0328: 2, L0772: 2, L0532: 2, L0663: 2, L0438: 2, H0684: 2, H0539: 2, L0748: 2, L0439: 2, L0750: 2, L0757: 2, H0624: 1, L0785: 1, H0580: 1, S0046: 1, S0132: 1, H0351: 1, H0370: 1, H0455: 1, H0299: 1, H0586: 1, H0331:</p>					52-76, 86-106, 9-25, 29-45
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1043	HSLGA24	882690	1053	83 - 490	2458	Pro-7 to Arg-12, Glu-18 to Ser-24, Ser-32 to Glu-38, Asp-103 to Arg-111.	AR089: 13, AR096: 9, AR052: 7, AR053: 5, AR060: 5, AR033: 5, AR039: 4, AR104: 4, AR055: 3, AR061: 2 S0028: 1			112-136, 42-62			
1044	HMHBT84	882784	1054	406 - 948	2459	Met-1 to Leu-6, Pro-13 to Ala-18,	AR055: 12, AR096: 8, AR060: 5, AR089: 5,			19-38, 118-135,			

									Ser-75 to Trp-82. AR039: 4, AR033: 4, AR052: 4, AR061: 4, AR104: 3, AR053: 3 H0556: 15, L0666: 5, L0438: 5, L0439: 5, L0665: 4, L0751: 4, L0777: 4, H0161: 3, H0645: 3, H0599: 3, H0266: 3, L0763: 3, L0747: 3, L0758: 3, L0759: 3, H0423: 3, H0265: 2, H0141: 2, S0045: 2, H0575: 2, H0421: 2, H0594: 2, H0264: 2, L0770: 2, L0771: 2, L0657: 2, L0664: 2, H0670: 2, H0518: 2, S0044: 2, H0436: 2, L0749: 2, L0757: 2, L0588: 2, L0599: 2, S0446: 2, H0585: 1, H0717: 1, H0716: 1, H0583: 1, S0116: 1, H0341: 1, H0254: 1, H0255: 1, H0306: 1, H0402: 1, S0360: 1, S0408: 1, S0046: 1, S0132: 1, S0476: 1, H0619: 1, H0549: 1, H0550: 1, S0222: 1, H0614: 1, H0392: 1, H0455: 1, H0613: 1, H0586: 1, H0587: 1, S0005: 1, H0492: 1, H0486: 1, H0250: 1, T0071: 1, H0581: 1,										46-63, 86- 102
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1045	HHEDW60	882799	1055	107 - 433	2460		H0052: 1, H0309: 1, H0545: 1, H0050: 1, L0471: 1, H0024: 1, L0183: 1, H0687: 1, H0286: 1, H0328: 1, L0483: 1, L0053: 1, H0628: 1, H0169: 1, H0674: 1, S0366: 1, H0038: 1, H0634: 1, H0488: 1, H0268: 1, T0041: 1, T0042: 1, H0494: 1, S0014: 1, H0625: 1, H0509: 1, H0641: 1, S0002: 1, H0529: 1, L0637: 1, L0646: 1, L0773: 1, L0662: 1, L0768: 1, L0652: 1, L0776: 1, L0659: 1, L0783: 1, S0374: 1, H0593: 1, S0126: 1, H0659: 1, H0658: 1, H0648: 1, H0672: 1, S3012: 1, S3014: 1, S0028: 1, L0754: 1, L0750: 1, L0731: 1, S0260: 1, S0436: 1, L0596: 1, L0581: 1, S0242: 1, S0194: 1, H0543: 1, H0506: 1 and H0008: 1.  AR039: 39, AR053: 30, AR052: 26, AR033: 23, AR096: 21, AR104: 21, AR089: 17, AR060: 15, AR055: 13, AR061: 10 L0777: 7, L0747: 5,				58-75
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1046	HNGNU93	882805	1056	221 - 811	2461	Leu-43 to Ser-52, Lys-84 to Lys-89, Lys-191 to Pro-197.	AR055: 8, AR060: 7, AR053: 6, AR089: 6, AR052: 5, AR096: 5, AR033: 5, AR061: 4, AR104: 4, AR039: 2 H0031: 5, H0581: 3, H0650: 2, H0486: 2, H0013: 2, S0152: 2, H0521: 2, L0748: 2, S0260: 2, H0265: 1, H0556: 1, S0114: 1, S0045: 1, H0437: 1, S0280: 1, H0050: 1, T0079: 1, H0510: 1, H0286: 1, H0169: 1, H0068: 1, H0598: 1,	H0556: 4, L0794: 4, L0592: 4, H0497: 3, H0052: 3, L0803: 3, H0087: 2, L0439: 2, L0749: 2, L0593: 2, H0459: 1, S0046: 1, L0717: 1, H0575: 1, S0010: 1, H0390: 1, H0194: 1, H0050: 1, H0375: 1, L0055: 1, S0036: 1, H0059: 1, S0038: 1, H0494: 1, S0002: 1, L0809: 1, L0789: 1, L0663: 1, L0665: 1, S0330: 1, H0521: 1, H0522: 1, H0696: 1, H0555: 1, S0028: 1, L0731: 1, L0759: 1, L0581: 1, H0542: 1 and H0422: 1.				125-141
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1047	HARMS29	882813	1057	100 - 423	2462	Pro-29 to Pro-41.	H0038: 1, H0634: 1, H0551: 1, S0038: 1, H0633: 1, H0652: 1, S0428: 1, H0144: 1, H0666: 1, S0028: 1, L0749: 1, H0445: 1, L0596: 1, L0591: 1, L0608: 1 and H0667: 1.				53-74, 1-17
1048	HAMHH25	882839	1058	123 - 569	2463	Thr-12 to Ser-18, Gly-88 to Leu-93, Gly-131 to Gln-144.	AR096: 4, AR053: 3, AR039: 2, AR055: 2, AR089: 2, AR033: 2, AR061: 2, AR060: 2, AR052: 1, AR104: 1, H0592: 1, T0048: 1, L0770: 1 and L0756: 1.				53-69
1049	HLCLA47	882849	1059	138 - 662	2464		AR039: 26, AR053: 19, AR052: 18, AR033: 15, AR089: 14, AR096: 14, AR055: 13, AR104: 13, AR060: 10, AR061: 7, H0560: 1				66-93, 40-59, 101-119

1050	HDFSO06	882888	1060	76 - 1269	2465	Met-1 to Glu-6, Leu-36 to Arg-41, Leu-62 to Gly-67, Lys-115 to Tyr-129, Asn-151 to Asp-156, Ala-178 to His-185, Pro-215 to Met-220, Lys-232 to Asn-238, Glu-261 to Pro-266, Asn-277 to Ser-284, Asn-314 to Lys-319, Asp-367 to Lys-377, Lys-391 to His-398.		1, H0580: 1, H0619: 1, L0467: 1, H0549: 1, T0039: 1, H0427: 1, H0575: 1, H0581: 1, H0597: 1, H0546: 1, T0010: 1, H0179: 1, H0286: 1, S0338: 1, H0615: 1, H0628: 1, H0063: 1, H0647: 1, H0649: 1, H0555: 1, S3012: 1, S0037: 1, S3014: 1, S0027: 1, S0032: 1, L0759: 1, L0593: 1 and H0543: 1.			71-95, 95- 111
1051	HFXKKG51	882935	1061	559 -	2466	His-10 to Asn-21,		AR053: 1, AR104: 1, AR033: 1, AR061: 0, AR089: 0, AR096: 0, AR039: 0, AR060: 0, AR052: 0 H0521: 6, H0553: 3, S0040: 1, H0661: 1, H0580: 1, S0222: 1, H0392: 1, H0586: 1, H0486: 1, H0184: 1, H0510: 1, H0428: 1, H0100: 1, H0130: 1, S0002: 1, S0426: 1, H0529: 1, H0520: 1, S0126: 1, L0748: 1, L0740: 1, L0754: 1, L0758: 1, H0667: 1 and H0542: 1.	AR096: 4, AR053: 3,		94-116,

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1052	HE9PQ22	882969	1062	138 - 476	2467		AR053: 24, AR033: 23, AR052: 22, AR055: 22, AR061: 18, AR089: 18, AR060: 12, AR039: 10, AR096: 10, AR104: 7 L0157: 7, L0750: 4, H0295: 2, H0341: 2, S0420: 2, T0109: 2, L0769: 2, L0774: 2, L0777: 2, S0046: 1, S0278: 1, H0549: 1, H0081: 1, H0124: 1, H0560: 1, L0772: 1, L0662: 1, L0768: 1, L0775: 1, L0655: 1, L0518: 1, L0791: 1, H0144: 1, H0651: 1, H0696: 1, H0187: 1, L0754: 1, L0755: 1 and H0422: 1.			94-113, 64-80, 10- 26
1053	HELEL31	882980	1063	115 - 495	2468	Met-1 to Leu-6, Leu-56 to Trp-67.	AR089: 15, AR052: 14, AR096: 13, AR060: 12, AR033: 12, AR039: 11, AR055: 10, AR104: 10, AR053: 9, AR061: 4 L0438: 3, L0751: 3, L0747: 3, L0757: 3, H0251:	1q24	107300, 131210, 136132, 145001, 173610, 601518, 601652	66-93, 29- 47

1054	HTLGQ83	882989	1064	814 - 2	2469	Pro-10 to Ser-16, Asp-31 to Met-43, Ala-113 to Arg-118.	2, L0771: 2, L0439: 2, L0754: 2, L0758: 2, H0381: 1, H0341: 1, S0360: 1, H0675: 1, S0045: 1, T0048: 1, H0545: 1, H0178: 1, H0562: 1, S0051: 1, H0428: 1, H0135: 1, H0087: 1, H0494: 1, L0764: 1, L0773: 1, L0768: 1, L0805: 1, L0776: 1, L0659: 1, S0380: 1, L0743: 1, L0744: 1, L0591: 1, L0592: 1, L0599: 1, L0595: 1 and L0600: 1. AR089: 15, AR033: 13, AR052: 11, AR053: 10, AR060: 9, AR096: 8, AR055: 8, AR061: 4, AR104: 3, AR039: 3 H0046: 22, L0748: 9, H0556: 7, L0766: 6, L0439: 6, H0619: 5, H0620: 5, L0777: 5, H0013: 4, H0135: 4, L0659: 4, H0672: 4, L0754: 4, L0595: 4, H0543: 4, H0550: 3, H0253: 3, H0052: 3, H0050: 3, H0024: 3, T0006: 3, H0617: 3, T0041: 3, H0130: 3, L0520: 3, L0769: 3, L0776: 3, L0665: 3, H0539: 3, L0758:				237-253, 66-82, 196-212, 119-135
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1055	HETJU23	883007	1065	518 - 1120	2470			1, L0608: 1, H0665: 1, H0423: 1, H0422: 1 and S0412: 1. AR055: 9, AR061: 8, AR033: 6, AR060: 6, AR052: 5, AR089: 4, AR053: 3, AR039: 2, AR096: 1, AR104: 1 L0749: 5, L0794: 3, H0658: 3, L0777: 3, H0046: 2, L0803: 2, L0666: 2, L0663: 2, L0438: 2, H0556: 1, H0329: 1, H0351: 1, H0253: 1, H0014: 1, T0023: 1, H0038: 1, H0477: 1, H0412: 1, L0370: 1, L0763: 1, L0769: 1, L0639: 1, L5566: 1, L0800: 1, L0768: 1, L0649: 1, L0804: 1, L0650: 1, L0776: 1, L0367: 1, L0665: 1, H0435: 1, H0670: 1, H0666: 1, H0522: 1, L0747: 1 and L0759: 1. AR089: 4, AR055: 4, AR033: 4, AR052: 4, AR096: 3, AR060: 3, AR053: 3, AR061: 3, AR039: 0, AR104: 0 S0114: 1, H0376: 1,			159-175, 59-75, 31- 47, 80-96
1056	HNGKB25	883012	1066	140 - 508	2471			AR089: 4, AR055: 4, AR033: 4, AR052: 4, AR096: 3, AR060: 3, AR053: 3, AR061: 3, AR039: 0, AR104: 0 S0114: 1, H0376: 1,			54-74, 10- 26, 33-49, 80-96

1057	HADAM67	883039	1067	86 - 634	2472	Ser-50 to Ser-57, Thr-73 to Leu-91, Pro-101 to Ser-110, Glu-116 to Phe-126.	S0428: 1 and L0748: 1, AR055: 8, AR089: 7, AR096: 7, AR053: 7, AR060: 6, AR033: 6, AR039: 5, AR104: 4, AR052: 3, AR061: 2 L0731: 9, L0803: 8, L0749: 8, L0748: 5, L0439: 5, L0756: 4, L0759: 4, H0581: 3, L0766: 3, L0747: 3, H0013: 2, H0427: 2, H0052: 2, H0251: 2, H0050: 2, L0794: 2, L0789: 2, L0665: 2, L0777: 2, L0758: 2, L0599: 2, S0134: 1, S0442: 1, S0358: 1, H0411: 1, H0261: 1, H0431: 1, H0455: 1, H0574: 1, H0486: 1, S0010: 1, H0439: 1, H0569: 1, H0014: 1, H0375: 1, H0124: 1, S0036: 1, H0038: 1, S0210: 1, L0371: 1, L0521: 1, L0774: 1, L0809: 1, S0374: 1, L0438: 1, H0696: 1, S0044: 1, H0436: 1, S0390: 1, L0750: 1, L0752: 1, S0276: 1, H0543: 1 and H0423: 1.				127-155
1058	HDQPI82	883055	1068	103 -	2473	Ala-15 to Gln-20,	AR039: 4, AR096: 3, H0543: 1 and H0423: 1.				26-45, 59-

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1059	HHFFX31	883056	1069	2474	Ala-15 to Gln-20.	AR055: 12, AR033: 10, AR052: 8, AR089: 8, AR104: 7, AR060: 7, AR061: 6, AR096: 6, AR053: 6, AR039: 4 L0748: 21, L0769: 6, L0743: 5, L0756: 5, H0556: 4, L0662: 4, L0664: 4, S0360: 3, H0529: 3, L0659: 3, L0666: 3, L0740: 3, L0751: 3, L0747: 3, L0755: 3, L0596: 3, S0278: 2,			26-45, 65- 83, 108- 124, 136- 152

	H0544: 2, H0546: 2, S0051: 2, H0292: 2, H0031: 2, L0142: 2, H0561: 2, L0770: 2, L0646: 2, L0766: 2, L0656: 2, L0663: 2, H0521: 2, S0406: 2, H0555: 2, L0754: 2, L0731: 2, L0758: 2, H0265: 1, H0295: 1, S0029: 1, H0254: 1, H0402: 1, S0420: 1, S0354: 1, S0358: 1, S0376: 1, S0045: 1, H0393: 1, H0411: 1, H0441: 1, H0586: 1, H0250: 1, H0635: 1, H0575: 1, H0309: 1, H0327: 1, H0545: 1, H0564: 1, H0123: 1, H0050: 1, H0024: 1, H0553: 1, H0166: 1, H0124: 1, S0036: 1, H0135: 1, H0551: 1, H0494: 1, H0509: 1, H0641: 1, L0643: 1, L0771: 1, L0803: 1, L0774: 1, L0555: 1, L0655: 1, L0657: 1, L0783: 1, H0520: 1, H0547: 1, H0689: 1, S0330: 1, S0152: 1, H0696: 1, H0478: 1, S3014: 1, S0028: 1, L0744: 1, L0439: 1, L0779: 1, L0780: 1, H0445: 1, S0011: 1, H0668: 1,	
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1060	HHESF39	883067	1070	13 - 681	2475	H0543: 1 and H0423: 1. AR033: 2, AR089: 2, AR096: 1, AR039: 1, AR060: 1, AR052: 1, AR061: 1, AR055: 0, AR053: 0, AR104: 0 H0457: 6, L0770: 4, L0775: 3, L0747: 3, L0662: 2, L0663: 2, H0521: 2, L0751: 2, L0731: 2, L0758: 2, H0445: 2, T0002: 1, H0657: 1, H0255: 1, H0402: 1, H0638: 1, S0408: 1, H0619: 1, S0222: 1, H0370: 1, H0333: 1, H0101: 1, H0575: 1, H0052: 1, H0546: 1, H0563: 1, H0050: 1, H0620: 1, S0051: 1, H0622: 1, H0644: 1, H0617: 1, H0606: 1, H0077: 1, S0002: 1, L0638: 1, L0796: 1, L0761: 1, L0646: 1, L0764: 1, L0794: 1, L0766: 1, L0806: 1, L0657: 1, L0665: 1, H0593: 1, H0670: 1, S0328: 1, H0539: 1, H0522: 1, H0696: 1, H0555: 1, S3012: 1, L0741: 1, L0439: 1, L0779: 1, L0780: 1, L0603: 1 and H0543: 1.	69-93, 174-198, 45-67, 1- 17, 144- 160
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1061	HTLHB93	883085	1071	8 - 343	2476	Ser-10 to Leu-18.	AR096: 2, AR055: 1, AR061: 1, AR060: 1, AR033: 1, AR089: 1, AR039: 0, AR052: 0, AR053: 0, AR104: 0 H0618: 1 and L0758: 1.			60-101, 19-44, 79- 101
1062	HDTJA78	883094	1072	26 - 553	2477	Pro-3 to Ser-9, Thr-71 to Lys-79, Ala-132 to Gly-139, Asn-144 to Leu-152.	AR096: 1, AR089: 1, AR055: 1, AR033: 1, AR061: 1, AR053: 0, AR039: 0, AR052: 0, AR060: 0, AR104: 0 L0764: 5, L0742: 4, L0439: 3, L0740: 3, L0747: 3, L0755: 3, S0408: 2, H0486: 2, H0581: 2, L0794: 2, L0809: 2, H0672: 2, L0748: 2, L0750: 2, H0686: 1, H0393: 1, H0178: 1, H0620: 1, H0212: 1, T0067: 1, L0769: 1, L0637: 1, L0644: 1, L0766: 1, L0803: 1, L0774: 1, L0775: 1, L0376: 1, L0805: 1, L0655: 1, L0783: 1, L0663: 1, L0665: 1, H0144: 1, L0438: 1, H0520: 1, H0547: 1, L0749: 1, L0752: 1, L0758: 1, L0759: 1 and H0343: 1.			43-70, 25- 43, 104- 121, 85- 101
1063	HNGPL75	883101	1073	197 -	2478	Met-1 to Pro-7.	AR055: 8, AR060: 6,			46-65, 76-



1064	HNTDV93	883131	1074	37 - 978	2479	Cys-9 to Asp-15.	AR033: 5, AR061: 4, AR052: 4, AR096: 4, AR053: 4, AR089: 3, AR104: 2, AR039: 2 L0766: 1, S0428: 1 and L0592: 1.				92
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1065	HNSMB73	883132	1075	73 - 444	2480		AR039: 39, AR033: 17, AR104: 15, AR053: 15, AR052: 15, AR089: 13, AR096: 12, AR055: 11, AR060: 10, AR061: 6 S0408: 7, S0442: 4, S0360: 4, L0646: 4, H0675: 3, L0764: 3, L0803: 3, S0444: 2, H0574: 2, S0440: 2, L0761: 2, L0662: 2, L0805: 2, L0791: 2, S0374: 2, H0521: 2, L0752: 2, S0436: 2, L0596: 2, H0686: 1, S0354: 1, S0358: 1, S0376: 1, H0147: 1, H0046: 1, H0014: 1, H0494: 1, L0065: 1, L0772: 1, L0642: 1, L0776: 1, L0809: 1, L0529: 1, L0790: 1, H0689: 1, H0648: 1, S0406: 1 and L0755: 1.			94-112, 64-82, 7- 25, 31-47
1066	HTLGL03	883142	1076	301 - 951	2481	Ser-117 to Ser-123, Gly-141 to Tyr-150.	AR055: 8, AR089: 4, AR033: 4, AR060: 4, AR061: 4, AR053: 4, AR052: 4, AR039: 4, AR096: 3, AR104: 2 L0439: 10, L0747: 10, L0794: 8, L0754: 8, L0731: 7, H0046: 6, L0759: 6, L0771: 5, L0773: 5, L0809:			188-213, 62-78

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1067	HGBCN41	883149	1077	436 - 876	2482	Glu-2 to Phe-18, Pro-20 to Leu-27.	1, L0804: 1, L0775: 1, L0806: 1, L0659: 1, L0529: 1, L0663: 1, S0428: 1, H0689: 1, H0670: 1, H0648: 1, S0380: 1, L0749: 1, L0750: 1, L0756: 1, L0755: 1, L0758: 1, S0434: 1, S0194: 1 and H0423: 1. AR060: 437, AR055: 303, AR061: 241, AR033: 235, AR104: 229, AR089: 173, AR039: 161, AR053: 108, AR052: 105, AR096: 64 L0659: 8, H0046: 7, L0752: 5, L0666: 4, H0549: 3, L0794: 3, L0758: 3, H0012: 2, L0763: 2, L0766: 2, L0647: 2, L0788: 2, S0192: 2, H0369: 1, H0618: 1, H0318: 1, H0596: 1, H0105: 1, H0015: 1, H0073: 1, H0510: 1, H0615: 1, H0622: 1, T0023: 1, H0598: 1, H0063: 1, H0494: 1, L0640: 1, L0631: 1, L0662: 1, L0805: 1, L0809: 1, L0787: 1, L0789: 1, L0532: 1, L0663: 1, L0664: 1, L0665: 1, H0689: 1, S0146: 1, H0478: 1, S3012: 1,					36-55, 59- 75
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1068	HWMBU8 9	883172	1078	149 - 652	2483			S0027: 1, L0439: 1, L0747: 1, L0750: 1, L0779: 1, L0780: 1, L0731: 1, S0276: 1 and H0352: 1. AR052: 10, AR053: 8, AR033: 7, AR055: 7, AR089: 7, AR039: 7, AR060: 6, AR096: 5, AR104: 4, AR061: 4 L0771: 3, L0803: 3, L0748: 3, L0754: 3, S0376: 2, H0658: 2, L0743: 2, L0747: 2, L0777: 2, L0755: 2, H0707: 2, L0591: 2, H0686: 1, H0685: 1, S0358: 1, H0356: 1, H0494: 1, S0440: 1, H0641: 1, L0800: 1, L0774: 1, L0789: 1, H0684: 1, L0749: 1, L0601: 1 and L0603: 1.			9-32, 34- 58
1069	HSEBA38	883175	1079	41 - 991	2484	Met-1 to Phe-10, Ala-76 to Asn-82, Gln-274 to Glu-280, Gln-288 to Arg-296.	AR053: 15, AR033: 12, AR052: 10, AR096: 10, AR060: 9, AR089: 8, AR104: 5, AR061: 5, AR039: 4, AR055: 3 L0748: 12, H0436: 4, H0265: 3, H0556: 3, S0116: 3, H0581: 3, H0050: 3, H0199: 3, H0038: 3, H0634:	22q11.2-qter		82-99, 208-224, 134-150, 228-244	

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1070	HEEAX26	883176	1080	281 - 1666	2485	Gly-39 to Thr-44, Asn-51 to Thr-62, Pro-88 to Pro-104, Ser-109 to Ser-114.	1, L0362: 1, S0011: 1, S0026: 1 and H0506: 1. AR096: 148, AR052: 102, AR089: 99, AR060: 78, AR053: 69, AR104: 35, AR039: 34, AR033: 33, AR061: 29, AR055: 11 L0748: 12, H0436: 4, H0265: 3, H0556: 3, S0116: 3, H0581: 3, H0050: 3, H0199: 3, H0038: 3, H0634: 3, H0623: 3, H0641: 3, H0521: 3, L0747: 3, H0543: 3, S0040: 2, H0580: 2, H0592: 2, H0618: 2, S0474: 2, H0421: 2, H0510: 2, H0644: 2, T0041: 2, L0439: 2, L0754: 2, L0759: 2, S0031: 2, H0136: 2, H0583: 1, H0656: 1, H0255: 1, S0356: 1, S0376: 1, H0393: 1, H0351: 1, H0549: 1, H0431: 1, H0392: 1, H0409: 1, H0642: 1, H0559: 1, T0109: 1, H0013: 1, H0069: 1, H0635: 1, H0253: 1, H0318: 1, H0123: 1, H0047: 1, H0197: 1, H0024: 1, S0051: 1, H0687: 1, H0290: 1, S0250: 1, H0328: 1,				257-274, 196-213, 61-77, 282-298
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1071	HSXCV48	883211	1081	352 - 690	2486	Arg-63 to Arg-71.	H0031: 1, H0068: 1, H0376: 1, S0036: 1, H0163: 1, H0591: 1, H0040: 1, H0616: 1, H0551: 1, H0413: 1, H0560: 1, S0144: 1, H0529: 1, L0638: 1, H0144: 1, H0703: 1, H0547: 1, S0126: 1, S0328: 1, H0539: 1, H0522: 1, S0314: 1, L0745: 1, L0750: 1, L0756: 1, L0752: 1, L0731: 1, L0591: 1, L0362: 1, S0011: 1, S0026: 1 and H0506: 1.					1-22, 30-53, 70-92
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1072	HTLAG19	883219	1082	107 - 1120	2487	Met-1 to Leu-6, Phe-48 to Gly-54, Cys-99 to Arg-104, Pro-258 to Ser-263, Arg-303 to Thr-309.	L0662: 1, L0806: 1, L0783: 1, L0663: 1, L0664: 1, S0330: 1, H0478: 1, L0741: 1, L0779: 1 and S0031: 1, AR033: 7, AR055: 5, AR061: 4, AR060: 3, AR089: 3, AR053: 3, AR052: 3, AR096: 3, AR039: 2, AR104: 2 H0253: 11, L0439: 6, L0794: 5, L0809: 5, L0758: 4, H0618: 3, L0766: 3, L0803: 3, H0393: 2, L0783: 2, L0438: 2, H0341: 1, S0420: 1, S0358: 1, H0730: 1, S0474: 1, S0362: 1, H0510: 1, H0181: 1, L0769: 1, L0542: 1, L0789: 1, H0187: 1, L0743: 1, L0779: 1 and L0777: 1.				189-212, 5-21
1073	HISBV17	883238	1083	10 - 594	2488		AR052: 4, AR053: 4, AR033: 3, AR039: 2, AR104: 2, AR089: 1, AR055: 1, AR061: 1, AR060: 1, AR096: 1				126-154, 169-190, 57-73, 87- 103, 2-18
1074	HFKLN07	883248	1084	700 - 1323	2489	Arg-22 to Asn-32, Arg-59 to Phe-83, Glu-197 to Asp-203.	AR039: 26, AR104: 13, AR096: 12, AR033: 12, AR055: 12, AR053: 12,				120-138, 160-177

1075	HTLID36	883250	1085	22 - 420	2490	Thr-3 to Thr-11,	AR089: 11, AR052: 11, AR060: 9, AR061: 8 L0439: 7, H0620: 5, L0764: 4, H0424: 3, H0617: 3, L0659: 3, H0543: 3, H0333: 2, H0069: 2, H0618: 2, L0666: 2, L0438: 2, L0747: 2, L0756: 2, L0777: 2, L0757: 2, H0341: 1, H0661: 1, H0638: 1, S0222: 1, H0492: 1, H0270: 1, H0599: 1, H0036: 1, H0253: 1, H0318: 1, S0049: 1, H0052: 1, H0545: 1, H0023: 1, H0266: 1, S0250: 1, H0040: 1, H0623: 1, H0100: 1, T0042: 1, H0641: 1, S0002: 1, H0695: 1, L0638: 1, L0761: 1, L0646: 1, L0662: 1, L0766: 1, L0655: 1, L0783: 1, L0809: 1, L0664: 1, H0519: 1, H0682: 1, H0435: 1, H0658: 1, H0521: 1, H0436: 1, H0631: 1, L0779: 1, L0758: 1, L0593: 1, L0595: 1, L0601: 1, H0665: 1, H0667: 1, H0542: 1, H0423: 1, H0677: 1 and S0446: 1.					97-117
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1076	HSLHV27	883287	1086	127 - 960	2491	Pro-51 to Gly-58.	AR053: 9, AR033: 8, AR089: 7, AR052: 7, AR060: 7, AR061: 5, AR096: 5, AR104: 4 H0618: 1 and H0038: 1. AR060: 3, AR061: 1, AR033: 1, AR039: 1, AR104: 1, AR055: 1, AR096: 1, AR089: 1, AR053: 0, AR052: 0 S0028: 1				114-143, 255-278, 154-179, 34-61, 2- 21, 85- 101, 66- 82, 233- 249, 208- 224
1077	HSLJG70	883295	1087	193 - 819	2492		AR089: 3, AR039: 3, AR060: 2, AR055: 2, AR053: 2, AR096: 2, AR061: 1, AR033: 1, AR104: 1 H0550: 1 and S0390: 1.				121-145, 143-166, 53-75, 2- 28, 26-46, 94-110, 171-187
1078	HSEAK30	883301	1088	300 - 1052	2493	Thr-97 to Ile-105, Phe-111 to Tyr-116, Gly-139 to Thr-147, Leu-155 to Tyr-161, Thr-177 to Gln-189.	AR089: 14, AR053: 10, AR055: 9, AR033: 9, AR060: 9, AR052: 8, AR096: 7, AR061: 6, AR039: 4, AR104: 3 L0749: 4, L0770: 2, H0254: 1, H0662: 1, L0534: 1, L0562: 1, S0442: 1, H0154: 1, S0002: 1, L0385:				197-226, 10-26

1079	HTTBM62	883307	1089	15 - 1493	2494		1, H0134: 1 and L0748: 1, AR061: 9, AR055: 8, AR033: 4, AR052: 4, AR060: 4, AR089: 3, AR053: 3, AR104: 2, AR096: 2, AR039: 1 H0046: 6, L0717: 2, L0770: 2, L0769: 2, L0666: 2, H0265: 1, H0556: 1, S0342: 1, H0346: 1, H0459: 1, S0418: 1, L0103: 1, S0300: 1, H0600: 1, H0587: 1, H0642: 1, H0331: 1, H0486: 1, H0069: 1, H0421: 1, H0597: 1, H0083: 1, L0052: 1, H0673: 1, H0040: 1, H0272: 1, H0529: 1, L0637: 1, L0653: 1, L0512: 1, L0659: 1, L0809: 1, H0547: 1, H0519: 1, H0593: 1, H0683: 1, S0378: 1, S0406: 1, H0555: 1, L0741: 1, L0747: 1, L0753: 1, S0031: 1, L0604: 1, S0011: 1 and S0424: 1.			262-282, 100-116, 75-91
1080	HFCDT23	883327	1090	74 - 394	2495		AR053: 7, AR096: 5, AR089: 4, AR052: 4, AR060: 3, AR055: 3, AR033: 3, AR104: 3,			75-107, 42-62, 1- 18, 21-37, 66-82

1081	HDPGU86	883328	1091	400 - 789	2496			AR061: 2, AR039: 0 S0152: 3, H0009: 2, H0135: 2, H0547: 2, L0439: 2, S0418: 1, S0354: 1, H0620: 1, H0264: 1, L0558: 1, H0519: 1, H0435: 1, H0539: 1, H0521: 1, L0751: 1, S0436: 1, S0192: 1 and H0506: 1.				32-65, 1- 19, 23-39
								AR096: 5, AR039: 4, AR104: 3, AR053: 3, AR052: 3, AR089: 2, AR055: 2, AR033: 2, AR061: 2, AR060: 1 L0766: 5, S0418: 4, H0135: 3, H0144: 3, S0152: 3, L0439: 3, L0777: 3, L0758: 3, H0009: 2, L0769: 2, L0771: 2, L0378: 2, L0663: 2, H0547: 2, L0740: 2, L0751: 2, S0436: 2, L0485: 2, H0556: 1, S0134: 1, H0657: 1, H0484: 1, S0420: 1, S0354: 1, L0717: 1, S0222: 1, H0270: 1, T0039: 1, L0021: 1, H0263: 1, H0620: 1, H0266: 1, H0687: 1, H0252: 1, H0604: 1, H0628: 1, H0617: 1, H0606: 1, H0264: 1, H0100:				

1082	H2CBE07	883335	1092	598 - 1317	2497	Lys-219 to Asn-232, Pro-235 to Ala-240.	1, H0560: 1, H0561: 1, L0796: 1, L0639: 1, L0646: 1, L0764: 1, L0768: 1, L0794: 1, L0774: 1, L0776: 1, L0558: 1, L0783: 1, L0383: 1, L0519: 1, L0789: 1, L0793: 1, L0666: 1, L0438: 1, H0519: 1, H0435: 1, S0328: 1, H0539: 1, H0521: 1, H0696: 1, H0134: 1, L0747: 1, L0779: 1, L0752: 1, L0731: 1, L0593: 1, H0665: 1, S0192: 1 and H0506: 1.				196-219, 66-85, 25- 47, 148- 166, 121- 138, 166- 182
							AR104: 1, AR053: 1, AR089: 1, AR061: 1, AR060: 0, AR055: 0, AR052: 0, AR033: 0, AR096: 0, AR039: 0 S0003: 7, H0046: 6, L0766: 5, L0731: 5, L0794: 4, L0805: 4, L0804: 3, L0748: 3, L0747: 3, L0777: 3, L0758: 3, H0556: 2, S0418: 2, S0442: 2, H0333: 2, H0331: 2, H0253: 2, L0598: 2, L0803: 2, L0775: 2, L0776: 2, L0789: 2, L0602: 2, S3014: 2, L0439: 2, L0749: 2, L0753: 2,				

1083	HFIHS04	883358	1093	42 - 755	2498	Pro-30 to Ser-38, Gly-69 to Leu-79, Thr-147 to Gly-158, Tyr-220 to Glu-238.	LO608: 2, L0362: 2, S0040: 1, S0218: 1, H0583: 1, H0650: 1, H0656: 1, L0415: 1, H0720: 1, H0638: 1, S0354: 1, H0580: 1, H0250: 1, H0599: 1, H0618: 1, H0309: 1, T0110: 1, H0178: 1, H0123: 1, H0024: 1, H0428: 1, T0023: 1, L0483: 1, H0628: 1, H0316: 1, T0067: 1, H0488: 1, S0344: 1, H0538: 1, UNKWN: 1, L0770: 1, L0769: 1, L0637: 1, L0764: 1, L0768: 1, L0375: 1, L0651: 1, L0806: 1, L0655: 1, L0659: 1, L0809: 1, L0663: 1, L0665: 1, H0725: 1, S0328: 1, H0539: 1, H0521: 1, H0436: 1, S3012: 1, L0779: 1, L0757: 1, S0308: 1, L0591: 1, L0599: 1, H0668: 1 and H0422: 1.					84-112, 39-66, 196-212, 157-175, 5-21
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1084	HTXLP33	883359	1094	67 - 486	2499	Gln-55 to Asn-65.	H0521: 2, L0439: 2, H0662: 1, S0420: 1, S0358: 1, S0132: 1, H0431: 1, H0586: 1, H0486: 1, H0013: 1, H0575: 1, H0090: 1, S0438: 1, H0509: 1, L0518: 1, H0539: 1, S0434: 1, S0242: 1 and S0194: 1. AR055: 7, AR053: 7, AR052: 6, AR033: 5, AR096: 4, AR039: 4, AR089: 4, AR061: 4, AR060: 3, AR104: 2, S0328: 4, H0556: 3, L0438: 2, L0742: 2, L0777: 2, H0170: 1, H0083: 1, H0598: 1, H0616: 1, L0770: 1, L0766: 1, L0655: 1, L0779: 1, H0445: 1 and L0608: 1.					110-129	
1085	HMEKG76	883364	1095	265 - 1125	2500	Glu-2 to Arg-10, Lys-18 to Lys-28, His-76 to Gly-84, Ser-101 to Gln-116, Asp-194 to Glu-199, Pro-239 to Ala-245, Asp-257 to Ser-272.	AR033: 7, AR055: 5, AR052: 5, AR053: 5, AR089: 4, AR060: 4, AR061: 3, AR096: 3, AR104: 3, AR039: 0, H0618: 6, L0769: 5, L0794: 5, L0439: 5, L0747: 5, L0766: 4, L0803: 4, S3014: 4, L0748: 4, L0758: 4.					123-139, 152-168	

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1086	HTENG02	883375	1096	110 - 607	2501	Tyr-92 to Glu-97.	AR055: 7, AR061: 5, AR033: 4, AR060: 4, AR052: 3, AR089: 3, AR053: 3, AR096: 3, AR104: 1, AR039: 1 H0009: 2, H0031: 2, L0596: 2, H0295: 1, H0341: 1, H0483: 1, S0358: 1, S0410: 1, H0497: 1, H0616: 1, S0440: 1, L0800: 1, L0794: 1, L0649: 1, L0803: 1, L0657: 1, L0791: 1, S0152: 1, L0779: 1, S0436: 1 and H0542: 1.			32-64, 71- 89, 98-115
1087	HTOAW80	883376	1097	285 - 1244	2502	Asn-82 to Tyr-87.	AR053: 9, AR096: 7, AR052: 7, AR089: 5, AR055: 4, AR039: 3, AR060: 3, AR104: 3, AR033: 2, AR061: 2 H0506: 4, S0434: 2 and H0264: 1.			13-46, 245-273, 50-73, 205-234, 180-199, 98-114
1088	HAIJAW57	883401	1098	47 - 1036	2503	Arg-6 to Gly-28, Lys-35 to His-47, Glu-50 to Lys-63, Leu-65 to Asn-86, Arg-93 to Asn-109, Ser-116 to Asp-136.	AR096: 13, AR033: 12, AR052: 11, AR053: 11, AR089: 10, AR104: 10, AR060: 7, AR039: 4, AR055: 2, AR061: 2 L0754: 15, L0748: 14, L0439: 9, H0543: 9, L0766: 7, L0747: 7, L0779: 7,			238-258, 262-280

	L0770: 6, L0771: 6, L0745: 6, L0758: 6, S0408: 5, L0665: 5, L0438: 5, L0749: 5, H0423: 5, S0474: 4, H0014: 4, H0038: 4, L0659: 4, H0436: 4, L0777: 4, L0731: 4, H0445: 4, L0362: 4, H0657: 3, S0116: 3, S0360: 3, S0222: 3, H0486: 3, H0052: 3, H0046: 3, L0483: 3, L0142: 3, H0551: 3, S0440: 3, S0002: 3, L0369: 3, L0803: 3, L0805: 3, L0776: 3, L0655: 3, L0527: 3, L0666: 3, S0374: 3, S0126: 3, H0710: 3, S0028: 3, L0740: 3, L0750: 3, L0589: 3, L0599: 3, L0415: 2, H0661: 2, H0306: 2, S0354: 2, S0358: 2, S0476: 2, H0619: 2, H0574: 2, H0013: 2, S0346: 2, S0003: 2, H0039: 2, H0674: 2, H0090: 2, L0564: 2, S0422: 2, L0769: 2, L0662: 2, L0775: 2, L0653: 2, H0144: 2, H0547: 2, S0328: 2, L0602: 2, H0521: 2, H0696: 2, S0406: 2, S3014: 2, L0759: 2, H0595: 2,	
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1089	HTEHF89	883419	1099	698 - 3	2504	Pro-35 to Cys-46, Pro-48 to Glu-54, Tyr-79 to Ser-85.	S0306: 1, S0438: 1, H0509: 1, S0344: 1, H0538: 1, H0529: 1, L0506: 1, L0371: 1, L0637: 1, L0667: 1, L0630: 1, L0764: 1, L0773: 1, L0768: 1, L0364: 1, L5574: 1, L0804: 1, L0774: 1, L0784: 1, L0378: 1, L0806: 1, L0606: 1, L0809: 1, L0791: 1, L0793: 1, L0663: 1, S0052: 1, S0216: 1, H0435: 1, H0658: 1, H0670: 1, H0648: 1, H0672: 1, H0522: 1, S0146: 1, S0027: 1, S0032: 1, L0741: 1, L0744: 1, L0751: 1, L0752: 1, L0753: 1, L0755: 1, L0757: 1, S0031: 1, L0608: 1, L0361: 1, S0026: 1, H0665: 1, S0242: 1, S0276: 1, H0542: 1, H0422: 1, L0462: 1 and H0352: 1. AR096: 1, AR104: 1, AR060: 1, AR033: 1, AR055: 1, AR089: 1, AR039: 0, AR053: 0, AR061: 0, AR052: 0 H0046: 9, H0038: 2, H0170: 1, H0455: 1, H0486: 1, H0013: 1, S0010: 1,				148-180, 90-109, 191-207, 58-76
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1090	HSYBB84	883420	1100	88 - 567	2505	Pro-29 to Cys-40, Pro-42 to Glu-48, Tyr-73 to Ser-79.	H0052: 1, H0327: 1, S6028: 1, S0214: 1, H0328: 1, H0040: 1, H0551: 1, H0268: 1, H0560: 1, H0520: 1 and H0519: 1. AR096: 7, AR033: 5, AR052: 5, AR089: 5, AR060: 4, AR104: 4, AR039: 4, AR053: 4, AR061: 1, AR055: 1 L0439: 11, H0046: 9, L0766: 6, L0777: 5, L0759: 5, L0438: 4, L0740: 4, H0486: 3, L0659: 3, H0539: 3, L0750: 3, S0358: 2, S6028: 2, H0688: 2, H0553: 2, H0038: 2, H0551: 2, L0666: 2, H0547: 2, L0752: 2, L0758: 2, S0434: 2, H0170: 1, H0740: 1, H0638: 1, S0444: 1, S0360: 1, H0455: 1, H0013: 1, H0156: 1, H0575: 1, S0010: 1, H0052: 1, H0327: 1, S0250: 1, S0214: 1, H0328: 1, H0428: 1, H0040: 1, H0268: 1, L0435: 1, H0560: 1, S0352: 1, L0769: 1, L0646: 1, L0662: 1, L0774: 1, L0775: 1, L0776: 1, L0655:	84-103, 52-70
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1091	HTJMD30	883430	1101	135 - 632	2506	Asn-6 to Gln-38, Gly-41 to Arg-49, Gln-57 to Gln-65, Gln-68 to Thr-74, Ala-76 to Leu-92.	1, L0663: 1, L0664: 1, L0665: 1, H0144: 1, S0374: 1, H0520: 1, H0519: 1, H0659: 1, S0330: 1, S0406: 1, S0028: 1, L0749: 1, L0753: 1, H0668: 1, S0026: 1 and H0667: 1. AR052: 2, AR061: 1, AR089: 1, AR104: 1, AR053: 1, AR033: 1, AR060: 1, AR096: 0, AR055: 0, AR039: 0 H0494: 4, H0521: 3, S3014: 3, S0354: 2, S0476: 2, H0083: 2, H0252: 2, H0644: 2, S0126: 2, S0152: 2, S0027: 2, S0028: 2, S0011: 2, H0543: 2, H0556: 1, S0040: 1, H0341: 1, S0282: 1, H0638: 1, S0442: 1, H0580: 1, H0393: 1, S0278: 1, H0437: 1, H0431: 1, H0497: 1, T0040: 1, T0114: 1, H0156: 1, H0097: 1, H0599: 1, H0024: 1, H0051: 1, H0355: 1, H0266: 1, H0031: 1, H0163: 1, H0634: 1, H0551: 1, H0264: 1, H0488: 1, H0268: 1, H0412: 1, H0056: 1, H0623:					126-143, 148-164
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1092	HELF05	883434	1102	1721 - 1296	2507	Pro-2 to Glu-8, Thr-26 to Asp-32, Pro-70 to Arg-77, Ser-89 to Thr-95.	1, H0561: 1, H0547: 1, H0519: 1, H0593: 1, H0539: 1, H0134: 1, H0436: 1, S3012: 1, H0445: 1, L0593: 1 and H0422: 1. AR104: 1, AR052: 1, AR055: 1, AR033: 1, AR061: 1, AR039: 0, AR089: 0, AR053: 0, AR060: 0, AR096: 0 L0794: 10, L0809: 9, L0750: 9, L0791: 7, L0747: 7, L0758: 6, L0759: 6, H0620: 5, L0749: 5, S0358: 4, H0135: 4, L0769: 4, L0800: 4, L0805: 4, L0659: 4, H0556: 3, L0471: 3, H0040: 3, L0804: 3, S0360: 2, H0393: 2, H0550: 2, H0592: 2, H0333: 2, S0049: 2, H0124: 2, S0438: 2, L0771: 2, L0662: 2, L0803: 2, L4501: 2, H0547: 2, L0779: 2, L0755: 2, L0731: 2, S0434: 2, L0603: 2, H0506: 2, H0713: 1, H0717: 1, H0294: 1, H0662: 1, H0729: 1, S0045: 1, H0607: 1, H0586: 1, H0587: 1, T0040: 1, S0280: 1, H0590:					126-142
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1094	HSLDT25	883540	1104	50 - 679	2509		AR052: 18, AR033: 13, AR096: 12, AR089: 12, AR053: 10, AR060: 7, AR061: 6, AR104: 6, AR055: 6, AR039: 5 S0028: 1			11-38, 59- 82, 89- 118, 115- 138, 145- 163
1095	HSDGH19	883575	1105	374 - 697	2510	Pro-5 to Lys-11, Ala-21 to Ser-26, Asp-50 to Thr-56, Cys-90 to Ile-96, Val-103 to Gln-108.	AR096: 25, AR039: 22, AR104: 19, AR089: 18, AR053: 17, AR033: 16, AR052: 14, AR060: 14, AR055: 12, AR061: 7 H0521: 2, S0031: 2, H0305: 1, H0619: 1, H0635: 1, H0318: 1, H0309: 1, H0090: 1, H0059: 1, S0002: 1, H0435: 1 and L0740: 1.			67-90, 31- 47
1096	HCEOU19	883591	1106	2 - 373	2511	Asp-21 to Cys-41, Pro-43 to Leu-51, Ala-111 to Trp-118.	AR089: 5, AR053: 5, AR060: 4, AR096: 4, AR033: 3, AR039: 2, AR055: 2, AR061: 2, AR104: 2, AR052: 1 L0751: 4, L0803: 3, H0052: 2, H0125: 1, S0442: 1, H0009: 1, S0003: 1, L0055: 1, L0662: 1, L0774: 1, L0659: 1, L0789: 1, H0214: 1, L0749: 1 and L0605: 1.			72-106, 1- 20
1097	HBIMF04	883607	1107	126 -	2512	Met-1 to His-10,	AR053: 4, AR052: 3,			287-303,

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1098	HSKZE56	883619	1108	30 - 1079	2513	1, L0639: 1, L0772: 1, L0643: 1, L0645: 1, L0773: 1, L0775: 1, L0806: 1, L0655: 1, L0659: 1, L0809: 1, L0790: 1, L0665: 1, H0593: 1, H0435: 1, S0328: 1, H0694: 1, H0134: 1, S0406: 1, L0741: 1, L0744: 1, L0748: 1, L0758: 1, H0667: 1 and H0506: 1. AR055: 17, AR033: 9, AR052: 8, AR061: 8, AR060: 7, AR089: 6, AR096: 6, AR104: 6, AR053: 5, AR039: 4 L0749: 6, S0356: 4, S0474: 4, L0748: 4, L0617: 3, S0126: 3, L0754: 3, L0588: 3, S0212: 2, S0045: 2, H0266: 2, H0170: 1, H0265: 1, H0419: 1, H0580: 1, S0046: 1, S0278: 1, S0280: 1, H0156: 1, H0575: 1, H0581: 1, H0123: 1, H0553: 1, L0142: 1, H0090: 1, H0063: 1, H0433: 1, H0641: 1, S0142: 1, L0644: 1, L0764: 1, L0650: 1, L0632: 1, L0787: 1, L0666: 1, H0725: 1, H0539: 1, H0521:					164-180, 271-287, 77-93
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1099	HLJBD90	883638	1109	731 - 1324	2514	Ala-2 to Tyr-20.		AR055: 2, AR052: 2, AR053: 2, AR033: 2, AR096: 2, AR039: 2, AR060: 1, AR061: 1, AR089: 1, AR104: 0				130-161
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1103	HWHPD05	883740	1113	133 - 1566	2518	Pro-44 to Lys-55, Pro-72 to Ser-79, His-138 to Lys-145, Leu-150 to Asp-155, Leu-164 to Val-170, Thr-173 to Gly-182, Gly-194 to Lys-204, Pro-233 to Gln-241, Pro-243 to Ala-255, Ser-469 to Asp-478.	AR055: 2, AR039: 1, AR104: 1, AR061: 1 S0282: 2 and H0352: 1. AR096: 1, AR033: 1, AR104: 1, AR089: 1, AR060: 1, AR061: 0, AR052: 0, AR053: 0, AR039: 0 L0439: 3, H0587: 1 and H0560: 1.				74
1104	HFRAN15	883797	1114	703 - 1347	2519	Tyr-86 to Pro-93, Pro-143 to Ala-151, Leu-178 to Arg-189.	AR096: 4, AR060: 3, AR089: 3, AR053: 2, AR055: 2, AR061: 2, AR033: 2, AR104: 1, AR052: 1, AR039: 0 H0617: 2 and S0050: 1.				16-39, 64- 85, 41-60, 99-115, 150-166
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1109	HBING74	883950	1119	639 - 1637	2524	Arg-6 to Val-12, Ala-16 to Asp-21, Ala-52 to Gln-58, Leu-187 to Tyr-192, Arg-282 to Pro-291, Pro-320 to Gly-328.	2, T0002: 1, H0717: 1, H0716: 1, S0134: 1, H0657: 1, H0661: 1, S0356: 1, H0722: 1, S0132: 1, H0645: 1, H0549: 1, H0586: 1, H0587: 1, H0574: 1, H0046: 1, H0569: 1, H0105: 1, H0373: 1, H0328: 1, H0688: 1, H0031: 1, H0553: 1, H0673: 1, L0435: 1, H0561: 1, H0509: 1, H0131: 1, L0639: 1, L0372: 1, L0641: 1, L0773: 1, L0648: 1, L0768: 1, L0386: 1, L0803: 1, L0775: 1, L0523: 1, L0805: 1, L0655: 1, L0659: 1, L0666: 1, L0664: 1, H0725: 1, L0438: 1, H0519: 1, H0593: 1, H0660: 1, H0539: 1, H0696: 1, L0754: 1, L0749: 1, L0599: 1, S0026: 1, H0665: 1, S0192: 1, S0194: 1, H0542: 1 and H0422: 1.				222-240
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1110	HBIMJ94	883951	1120	76 - 1824	2525	<p>Thr-7 to Asn-13, Arg-55 to Pro-84, Leu-142 to Val-147, Ala-160 to Arg-165, Thr-173 to Thr-182, Asp-207 to Ile-217, Ala-233 to Pro-238, Asp-249 to Asp-261, Glu-264 to Cys-270, Glu-287 to Gly-301, Ala-319 to Pro-326, Val-328 to Gly-334, Pro-344 to Thr-350.</p>	<p>H0422: 1, AR039: 16, AR033: 11, AR053: 10, AR096: 9, AR089: 9, AR052: 8, AR104: 7, AR055: 7, AR060: 5, AR061: 5 H0052: 6, L0766: 6, L0748: 5, L0747: 5, H0253: 4, L0769: 4, L0771: 4, L0756: 4, L0758: 4, S0360: 3, H0559: 3, H0124: 3, L0774: 3, L0438: 3, L0779: 3, L0731: 3, H0624: 2, S0212: 2, H0254: 2, H0662: 2, L0617: 2, H0392: 2, H0618: 2, H0123: 2, H0012: 2, H0620: 2, S0002: 2, L0796: 2, L0662: 2, L0803: 2, L0655: 2, L0789: 2, L0070: 2, L0751: 2, H0556: 1, T0002: 1, S0114: 1, H0341: 1, H0483: 1, H0255: 1, S0418: 1, S0354: 1, S0376: 1, S0045: 1, H0411: 1, H0261: 1, H0549: 1, S0222: 1, S0474: 1, S0049: 1, H0194: 1, H0545: 1, H0023: 1, H0024: 1, S0051: 1, H0510: 1, H0238: 1, S0250: 1, T0023: 1, H0553:</p>	22q13.33	532-558, 36-52, 502-518
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1111	HNFCl36	884007	1121	65 - 961	2526	Gly-5 to Gln-12, Arg-34 to Gly-39, Gly-76 to Gly-81, Glu-86 to Ile-93, Phe-97 to Ala-104.	1, H0617: 1, H0674: 1, S0366: 1, S0036: 1, H0135: 1, H0040: 1, H0087: 1, S0038: 1, T0041: 1, S0464: 1, S0440: 1, H0652: 1, L0598: 1, H0529: 1, L0369: 1, L0770: 1, L0639: 1, L0637: 1, L0764: 1, L0773: 1, L4556: 1, L0775: 1, L0805: 1, L0776: 1, L0661: 1, L0657: 1, L0659: 1, L0542: 1, L0384: 1, L0809: 1, L4501: 1, L0666: 1, H0593: 1, S0126: 1, S0330: 1, H0521: 1, H0522: 1, H0555: 1, H0187: 1, S3012: 1, S0028: 1, L0745: 1, L0757: 1, S0194: 1 and H0423: 1.				13-32, 227-244, 119-135, 208-224
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1112	HAFAH26	884076	1122	43 - 1053	2527		AR033: 7, AR060: 5, AR061: 5, AR055: 5, AR089: 4, AR052: 3, AR053: 3, AR096: 2, AR039: 2, AR104: 1 H0643: 2, L0803: 2, S0452: 2, T0049: 1, H0580: 1, H0013: 1, H0156: 1, H0581: 1, H0179: 1, H0271: 1, H0040: 1, S0422: 1, L0369: 1, L0766: 1, L0655: 1, L0607: 1, L0791: 1, H0693: 1, H0670: 1, S0380: 1, H0579: 1, L0777: 1, L0752: 1, S0011: 1 and H0653: 1.			27-64, 22- 39, 133- 149, 186- 202, 218- 234
1113	HE8MV45	884379	1123	164 - 775	2528	Gln-109 to Gln-115, Gln-149 to Ala-154.	AR052: 6, AR055: 4, AR053: 4, AR060: 3, AR033: 3, AR096: 2, AR039: 2, AR089: 2, AR061: 2, AR104: 2			8-27, 74- 90
1114	HUKEQ96	884532	1124	865 - 563	2529	Arg-49 to Ala-55.	AR033: 19, AR104: 18, AR055: 15, AR060: 10, AR052: 9, AR061: 9, AR089: 8, AR053: 8, AR096: 8, AR039: 4 L0439: 58, L0438: 21, H0556: 7, H0052: 7, L0771:			73-89, 1- 17



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1115	HKADF73	884660	1125	514 - 1134	2530	Met-1 to Ser-12, Pro-47 to Trp-55, Pro-63 to Trp-71, Pro-79 to Trp-87, Pro-95 to Pro-104, Gln-129 to Asp-137, Arg-165 to Gly-170.	1, H0213: 1, H0628: 1, H0617: 1, L0055: 1, H0135: 1, H0087: 1, H0551: 1, H0477: 1, H0059: 1, S0038: 1, L0435: 1, T0042: 1, H0494: 1, S0344: 1, S0426: 1, L0505: 1, L0640: 1, L0769: 1, L0638: 1, L0642: 1, L0764: 1, L0773: 1, L0794: 1, L0803: 1, L0774: 1, L0375: 1, L0378: 1, L0806: 1, L0805: 1, L0655: 1, L0493: 1, L0659: 1, L0783: 1, L0809: 1, L0789: 1, H0519: 1, S0126: 1, H0690: 1, H0682: 1, S0330: 1, H0539: 1, H0522: 1, S0037: 1, L0751: 1, L0754: 1, L0747: 1, L0749: 1, L0786: 1, H0445: 1, L0596: 1, H0542: 1 and H0543: 1.				105-123, 143-159
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1116	HSLN72	884818	1126	79 - 435	2531				1, S0330: 1, H0539: 1, H0522: 1, S0406: 1, H0555: 1, L0756: 1, L0777: 1, L0731: 1, L0759: 1, S0434: 1, S0436: 1, S0192: 1, H0542: 1 and S0458: 1.				24-58, 95-119, 5-21
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1117	HTXDM64	885098	1127	1274 - 789	2532	Lys-10 to Arg-17, Glu-31 to Ser-37, Thr-62 to Phe-70, Ser-83 to Gly-93.			AR055: 11, AR053: 8, AR060: 8, AR089: 7, AR096: 7, AR052: 6, AR061: 5, AR104: 5, AR039: 5, AR033: 5 H0305: 6, H0556: 3, L0599: 2, H0265: 1, S0134: 1, S0212: 1, H0632: 1, H0383: 1, L0664: 1, S0152:				98-126, 39-61

1118	HAGDJ72	885264	1128	185 - 505	2533	Met-1 to Ser-8, Val-31 to Gly-36, Ser-73 to Ala-83, Ser-97 to Phe-102.	1, L0748: 1 and L0753: 1. AR055: 10, AR033: 5, AR060: 4, AR053: 4, AR061: 4, AR052: 3, AR089: 2, AR096: 2, AR104: 2, AR039: 1 S0010: 1, L0438: 1, H0659: 1 and L0439: 1.				37-70
1119	HTPHK88	885476	1129	438 - 908	2534	Lys-26 to Glu-49, Lys-121 to Leu-131.	AR055: 9, AR060: 6, AR089: 5, AR033: 4, AR052: 4, AR053: 4, AR061: 4, AR104: 2, AR096: 2, AR039: 2 H0622: 1, H0509: 1, H0144: 1, S0126: 1, L0750: 1 and L0759: 1.				1-27, 52- 68
1120	HDPFA53	885596	1130	1038 - 1	2535	Gln-12 to Asp-18.	AR096: 9, AR060: 6, AR089: 5, AR104: 5, AR033: 4, AR039: 4, AR052: 4, AR055: 3, AR061: 2, AR053: 2 L0770: 5, L0751: 4, H0040: 3, L0766: 3, L0758: 3, S0358: 2, H0619: 2, H0266: 2, S0003: 2, H0553: 2, H0056: 2, L0775: 2, L0655: 2, L0665: 2, H0690: 2, H0696: 2, L0748: 2, L0754: 2, L0745: 2, L0777:				295-326, 279-301

1121	HMSDQ93	886043	1131	160 - 459	2536	Ile-26 to Lys-34.	<p>2, L0755: 2, L0731: 2, L0759: 2, H0624: 1, H0650: 1, S0282: 1, H0661: 1, S0442: 1, S0408: 1, H0580: 1, S0222: 1, H0587: 1, H0486: 1, T0114: 1, H0156: 1, L0021: 1, H0003: 1, H0575: 1, H0004: 1, S0346: 1, H0327: 1, H0050: 1, T0010: 1, H0375: 1, H0628: 1, S0036: 1, H0163: 1, H0634: 1, H0494: 1, H0509: 1, H0649: 1, L0598: 1, H0529: 1, L0369: 1, L0764: 1, L0381: 1, L0653: 1, L0776: 1, L0629: 1, H0520: 1, H0682: 1, H0659: 1, H0539: 1, H0521: 1, S0406: 1, H0436: 1, H0540: 1, L0744: 1, L0752: 1, L0596: 1, L0485: 1, S0026: 1, S0194: 1 and H0543: 1. AR052: 19, AR096: 14, AR089: 10, AR039: 7, AR053: 7, AR033: 6, AR060: 4, AR061: 3, AR055: 2, AR104: 1 H0580: 1, H0486: 1, H0328: 1, S0002: 1, S0330: 1 and H0521: 1.</p>						61-78
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1122	HSXAD12	886222	1132	341 - 793	2537	Pro-111 to Gly-116, Ala-130 to Trp-142.	AR055: 9, AR052: 8, AR033: 6, AR060: 5, AR096: 5, AR061: 4, AR089: 4, AR039: 4, AR053: 4, AR104: 3 L0794: 10, L0766: 9, L0740: 9, L0749: 8, H0046: 7, L0758: 7, H0521: 6, L0803: 5, S0358: 4, H0457: 4, L0769: 4, L0744: 4, L0439: 4, L0747: 4, L0750: 4, L0779: 4, H0657: 3, H0266: 3, H0553: 3, H0090: 3, H0413: 3, L0770: 3, L0804: 3, L0775: 3, L0659: 3, L0438: 3, H0519: 3, S0152: 3, L0748: 3, L0731: 3, H0445: 3, S0026: 3, H0265: 2, S0212: 2, S0278: 2, H0050: 2, S0440: 2, S0002: 2, L0763: 2, L0761: 2, L0764: 2, L0771: 2, L0776: 2, L0809: 2, L0789: 2, S0126: 2, H0659: 2, H0660: 2, S0330: 2, H0539: 2, L0751: 2, L0777: 2, L0757: 2, L0595: 2, H0423: 2, H0624: 1, S0040: 1, H0583: 1, H0341: 1, H0484: 1, S0418: 1, S0420: 1,				5-26, 54- 70, 73-89
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	S0354: 1, S0376: 1, H0637: 1, H0580: 1, H0411: 1, H0549: 1, H0497: 1, H0574: 1, H0581: 1, H0421: 1, H0052: 1, H0251: 1, L0738: 1, H0544: 1, H0009: 1, H0123: 1, H0023: 1, H0014: 1, H0083: 1, S6028: 1, H0271: 1, H0284: 1, S0003: 1, H0674: 1, S0036: 1, H0038: 1, H0040: 1, H0063: 1, H0551: 1, H0059: 1, H0494: 1, H0509: 1, H0641: 1, S0142: 1, S0344: 1, H0538: 1, S0426: 1, L0631: 1, L0800: 1, L0641: 1, L0773: 1, L0648: 1, L0662: 1, L0767: 1, L0768: 1, L0774: 1, L0651: 1, L0805: 1, L0527: 1, L0518: 1, L0666: 1, L0663: 1, L0664: 1, L0665: 1, S0052: 1, H0144: 1, S0374: 1, H0547: 1, H0435: 1, H0648: 1, S0328: 1, L0602: 1, H0704: 1, H0627: 1, S3014: 1, L0754: 1, L0780: 1, L0753: 1, L0759: 1, S0434: 1, L0480: 1, L0589: 1 and L0608: 1.
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1123	HWBAL42	886307	1133	563 - 177	2538	Arg-37 to Arg-46, Ser-71 to Gln-76.	AR052: 13, AR053: 9, AR096: 4, AR089: 4, AR060: 2, AR033: 2, AR104: 2, AR039: 1, AR055: 1, AR061: 1 H0547: 4, H0251: 3, H0521: 3, H0542: 3, H0266: 2, H0040: 2, L0646: 2, L0659: 2, L0665: 2, L0743: 2, L0754: 2, S0116: 1, S0354: 1, S0376: 1, H0580: 1, H0742: 1, H0486: 1, H0575: 1, H0318: 1, H0457: 1, H0084: 1, H0212: 1, H0059: 1, H0509: 1, H0142: 1, S0002: 1, L0764: 1, L0662: 1, L0626: 1, L0766: 1, L0809: 1, H0519: 1, H0672: 1, S0378: 1, S0174: 1, H0626: 1, S0027: 1, L0780: 1, L0755: 1, L0591: 1, S0026: 1, H0665: 1, H0543: 1 and H0422: 1.			48-65
1124	HUJBO10	886364	1134	204 - 1079	2539	Gln-56 to Leu-68, Glu-88 to Asn-95, Glu-122 to Leu-127, Val-136 to Cys-145, Gly-185 to Leu-191, Leu-239 to Lys-252.	AR089: 2, AR053: 2, AR060: 2, AR033: 2, AR104: 2, AR096: 2, AR039: 1, AR055: 1, AR061: 1, AR052: 0 L0779: 3, H0650: 1, H0560: 1, L0770: 1, L0806:			249-282, 274-290, 31-47

1125	HMUAP06	886417	1135	1684 - 905	2540	Val-62 to Gly-67, Glu-130 to Leu-135, Glu-164 to Glu-179, Glu-213 to Gly-223.	1, L0655: 1, H0444: 1, L0596: 1, L0591: 1 and S0424: 1. AR052: 5, AR053: 4, AR039: 3, AR033: 2, AR104: 2, AR089: 2, AR055: 2, AR096: 2, AR061: 2, AR060: 1 S0212: 1, T0114: 1, H0253: 1, H0266: 1, H0644: 1, H0494: 1, H0529: 1, H0435: 1, L0759: 1, L0596: 1 and H0423: 1.				239-255, 138-154, 179-195
1126	HLYCA31	886496	1136	956 - 261	2541	Met-1 to Pro-7, Ser-12 to His-19.	AR039: 25, AR033: 16, AR089: 13, AR104: 12, AR096: 12, AR053: 11, AR052: 10, AR055: 9, AR060: 9, AR061: 7 H0052: 3, L0666: 3, L0758: 3, S0007: 2, H0201: 2, H0090: 2, H0672: 2, L0748: 2, L0747: 2, L0749: 2, L0752: 2, H0445: 2, H0265: 1, S0134: 1, S0212: 1, S0348: 1, S0045: 1, H0393: 1, S0222: 1, T0060: 1, H0013: 1, T0082: 1, H0318: 1, L0471: 1, H0266: 1, L0455: 1, L0456: 1,				175-208

								S0366: 1, H0561: 1, H0131: 1, S0150: 1, H0538: 1, S0422: 1, L0774: 1, L0636: 1, H0547: 1, H0593: 1, S0136: 1, S0028: 1, L0751: 1, L0745: 1, L0779: 1, L0731: 1, L0759: 1, H0707: 1, H0423: 1 and S0446: 1.				
1127	HETTY94	886524	1137	88 - 612	2542	Pro-15 to Glu-25, Ala-107 to Gln-112.		AR089: 6, AR055: 5, AR060: 5, AR033: 3, AR061: 3, AR052: 3, AR096: 3, AR104: 3, AR053: 2, AR039: 2 L0751: 2, L0803: 1, L0805: 1, S0374: 1, H0658: 1 and L0747: 1.				23-59
1128	HRGBW44	886559	1138	78 - 1259	2543	Glu-7 to Trp-15, Glu-24 to Arg-31, Arg-71 to Pro-80, Glu-91 to Pro-98, Gln-112 to Thr-130, Asp-168 to Leu-175, Lys-202 to Lys-207, Glu-291 to Pro-298, Lys-332 to Ile-340, Asp-343 to Glu-351, Lys-363 to Ser-380, Leu-386 to Ala-393.		AR052: 49, AR096: 28, AR089: 27, AR053: 22, AR060: 20, AR039: 18, AR033: 11, AR061: 9, AR055: 6, AR104: 5 H0617: 6, L0748: 5, L0809: 4, L0581: 4, L0789: 3, L0747: 3, L0779: 3, L0518: 2, S0330: 2, L0743: 2, L0439: 2, L0749: 2, L0750: 2, H0170: 1, H0484: 1, H0497: 1, H0427: 1, H0599: 1, H0618: 1, H0544: 1				37-56, 306-326, 258-281, 209-225, 178-194, 139-155

1129	HMTAU01	886593	1139	274 - 1629	2544	His-17 to Arg-24, Asp-46 to Leu-51, Glu-161 to Glu-172, Arg-273 to Glu-284, Pro-291 to Lys-296, Pro-317 to Ala-326, Pro-393 to Pro-410, Glu-416 to Ile-421.	AR053: 4, AR052: 4, AR096: 4, AR089: 3, AR060: 2, AR033: 2, AR055: 1, AR061: 1, AR104: 1, AR039: 0 L0748: 5, H0351: 3, L0794: 3, L0803: 3, L0779: 3, H0423: 3, L0766: 2, L0804: 2, H0686: 1, S0116: 1, S0354: 1, H0411: 1, H0600: 1, H0587: 1, H0486: 1, H0421: 1, H0565: 1, L0060: 1, H0551: 1, H0268: 1, H0059: 1, S0440: 1, H0646: 1, L0800: 1, L0805: 1, L0653: 1, L0776: 1,	1, H0545: 1, H0150: 1, H0009: 1, H0562: 1, S0388: 1, H0687: 1, H0181: 1, H0166: 1, H0264: 1, S0112: 1, H0494: 1, H0509: 1, S0144: 1, S0344: 1, L0640: 1, L0770: 1, L0769: 1, L0766: 1, L0803: 1, L0776: 1, L0636: 1, L0790: 1, L0665: 1, H0547: 1, S0126: 1, H0672: 1, H0518: 1, H0134: 1, L0759: 1, S0434: 1, L0592: 1, H0543: 1, H0422: 1 and H0352: 1.				101-123, 138-154, 327-343, 365-381, 206-222, 77-93
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1130	HDPVO38	886670	1140	49 - 1644	2545	Pro-46 to Arg-51, Leu-65 to Asp-70, Thr-103 to Pro-113.	S0374: 1, H0658: 1, H0518: 1, H0436: 1, L0749: 1, L0758: 1, S0276: 1 and L0465: 1. AR033: 2, AR089: 2, AR060: 1, AR053: 1, AR039: 1, AR061: 1, AR055: 1, AR052: 0, AR096: 0, AR104: 0 L0794: 6, L0749: 5, L0756: 5, S0192: 5, L0805: 4, L0747: 4, L0752: 4, L0455: 3, H0038: 3, L0770: 3, L0793: 3, L0591: 3, H0046: 2, H0135: 2, L0769: 2, L0637: 2, L0776: 2, L0659: 2, L0518: 2, L0809: 2, L0565: 2, H0522: 2, L0748: 2, S0282: 1, H0664: 1, S0418: 1, S0420: 1, S0007: 1, S0132: 1, H0333: 1, H0486: 1, H0618: 1, S0010: 1, H0596: 1, L0040: 1, L0471: 1, S0051: 1, T0023: 1, H0316: 1, H0494: 1, S0440: 1, H0509: 1, H0647: 1, L0640: 1, L0772: 1, L0800: 1, L0641: 1, L0662: 1, L0768: 1, L0803: 1, L0774: 1, L0651: 1,				271-288, 338-355, 128-144, 230-246, 311-327
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	L0662: 2, L0651: 2, H0519: 2, H0689: 2, H0518: 2, H0552: 2, S3014: 2, S0028: 2, L0745: 2, L0779: 2, L0752: 2, L0731: 2, L0757: 2, S0434: 2, L0596: 2, L0589: 2, L0599: 2, L0362: 2, H0170: 1, H0556: 1, S6024: 1, S0116: 1, S0282: 1, S0400: 1, H0661: 1, S0444: 1, H0676: 1, S0408: 1, T0008: 1, H0637: 1, H0580: 1, S0046: 1, L0717: 1, H0013: 1, L0021: 1, H0318: 1, S0474: 1, S0049: 1, H0263: 1, H0596: 1, H0024: 1, L0163: 1, S0051: 1, H0355: 1, S0003: 1, H0252: 1, T0006: 1, H0628: 1, H0124: 1, H0090: 1, H0040: 1, H0634: 1, S0372: 1, S0440: 1, H0633: 1, S0144: 1, S0426: 1, H0517: 1, L0796: 1, L0761: 1, L0667: 1, L0373: 1, L0374: 1, L0773: 1, L0364: 1, L0387: 1, L0804: 1, L0650: 1, L0774: 1, L0653: 1, L0776: 1, L0655: 1, L0628: 1, L0657: 1, L0782: 1.					
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1132	HTLJA77	886742	1142	213 - 605	2547	Gly-13 to Pro-21, Ser-67 to Pro-73, Gly-92 to Leu-98.	AR055: 12, AR061: 6, AR060: 6, AR033: 6, AR089: 5, AR096: 5, AR052: 5, AR039: 4, AR104: 3, AR053: 3 L0752: 7, L0747: 6, L0666: 5, L0803: 4, L0776: 4, S0222: 3, L0662: 3, L0766: 3, L0777: 3, L0361: 3, S0114: 2, H0254: 2, H0661: 2, S0354: 2, H0618: 2, H0594: 2, H0188: 2, H0424: 2, H0135: 2, L0764: 2, L0805: 2, L0655: 2, L0789: 2, L0532: 2, S0052: 2, L0438: 2, H0521: 2, L0742: 2, L0743: 2, L0754: 2, L0750: 2, L0755: 2, H0422: 2, H0685: 1, S0342: 1, H0713: 1, S0134: 1,	L0790: 1, L0666: 1, L0665: 1, S0053: 1, H0144: 1, H0520: 1, H0435: 1, H0659: 1, H0648: 1, H0539: 1, S0380: 1, S0152: 1, H0522: 1, S0404: 1, S0406: 1, L0747: 1, L0756: 1, L0758: 1, S0260: 1, H0445: 1, L0366: 1, S0011: 1, H0665: 1, S0196: 1 and H0542: 1.				37-67
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1133	HCFLJ17	886761	1143	34 - 381	2548	Glu-8 to Glu-18, Glu-32 to Ser-56.	H0583: 1, H0255: 1, H0402: 1, S0358: 1, S0476: 1, L0717: 1, H0392: 1, H0455: 1, H0613: 1, L0586: 1, S0280: 1, L0021: 1, H0706: 1, H0390: 1, H0581: 1, H0251: 1, H0544: 1, H0545: 1, H0046: 1, L0471: 1, T0010: 1, H0028: 1, H0615: 1, H0604: 1, H0673: 1, H0708: 1, H0413: 1, H0102: 1, L0770: 1, L0769: 1, L0772: 1, L0646: 1, L0364: 1, L0794: 1, L0774: 1, L0523: 1, L0806: 1, L0653: 1, L0659: 1, L0663: 1, L0664: 1, L0665: 1, H0144: 1, S0374: 1, H0435: 1, H0658: 1, H0660: 1, H0696: 1, H0576: 1, S0028: 1, L0748: 1, L0749: 1, L0756: 1, L0779: 1, L0758: 1, L0366: 1, S0194: 1, H0423: 1, S0458: 1, S0446: 1, H0506: 1 and H0352: 1.	88-107
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L0758: 7, S0358: 5, L0362: 5, L0766: 4, L0754: 4, H0423: 4, H0318: 3, H0551: 3, H0529: 3, L0803: 3, H0519: 3, L0750: 3, L0777: 3, H0650: 2, H0369: 2, H0575: 2, S0474: 2, T0110: 2, S0003: 2, H0268: 2, L0770: 2, L0662: 2, L0375: 2, H0144: 2, S0374: 2, S0152: 2, L0780: 2, L0752: 2, L0731: 2, H0445: 2, L0596: 2, L0605: 2, L0599: 2, L0608: 2, H0543: 2, H0624: 1, H0170: 1, H0716: 1, H0657: 1, H0402: 1, S0420: 1, S0442: 1, S0360: 1, H0675: 1, S0045: 1, S0476: 1, L0717: 1, H0600: 1, H0587: 1, H0497: 1, H0574: 1, H0098: 1, H0037: 1, L0105: 1, H0581: 1, H0052: 1, H0544: 1, L0471: 1, H0060: 1, H0328: 1, H0622: 1, L0483: 1, L0055: 1, H0598: 1, H0090: 1, H0040: 1, H0413: 1, H0561: 1, L0638: 1, L0667: 1, L0646: 1, L0794: 1, L0774: 1, L0805: 1, L0655:
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1134	HNGKM74	886937	1144	26 - 988	2549	Phe-140 to Lys-151.	1, L0527: 1, L0657: 1, L0659: 1, L0526: 1, L0783: 1, L0809: 1, L4501: 1, L0666: 1, H0520: 1, H0547: 1, H0690: 1, H0658: 1, H0660: 1, H0521: 1, H0555: 1, H0436: 1, S0028: 1, L0742: 1, L0756: 1, S0192: 1, S0242: 1, S0194: 1 and S0276: 1.				168-190, 97-114, 207-223
1135	HTTJQ27	887007	1145	112 - 666	2550	Pro-2 to Cys-7, Ile-113 to Lys-118, Glu-162 to Ala-170.	AR061: 4, AR055: 4, AR053: 4, AR060: 3, AR089: 3, AR052: 3, AR039: 3, AR033: 3, AR096: 3, AR104: 2 L0800: 1 and S0428: 1. AR055: 3, AR061: 3, AR033: 3, AR052: 3, AR089: 3, AR060: 2, AR096: 2, AR104: 2, AR053: 1, AR039: 1 S0250: 3, L0659: 3, H0038: 2, S0002: 2, S0330: 2, S0360: 1, H0604: 1, H0634: 1, L0764: 1, L0766: 1, H0660: 1, S0380: 1 and L0751: 1.				49-66
1136	HBCBF11	887008	1146	80 - 733	2551	Ser-57 to Gly-72, Thr-91 to Gly-96.	AR053: 2, AR089: 2, AR096: 2, AR055: 1.				125-159

						Asn-104 to Gln-112, Asp-119 to Lys-126.		AR052: 1, AR060: 1, AR061: 1, AR104: 1, AR039: 1, AR033: 1 H0592: 2, L0754: 2, S0132: 1, H0370: 1, H0587: 1, S0344: 1, L0665: 1, H0682: 1 and H0555: 1.				
1137	HFOYG86	887019	1147	247 - 570	2552	Arg-26 to Gly-34, Tyr-71 to Lys-77.		AR089: 3, AR096: 3, AR052: 3, AR061: 2, AR060: 2, AR104: 2, AR033: 1, AR055: 1, AR053: 1, AR039: 0 L0777: 2, L0731: 2, L0659: 1 and S0276: 1.			77-102, 47-68	
1138	HKGCJ92	887027	1148	504 - 1166	2553	Lys-19 to Val-24, Ser-27 to Asn-37, Asn-82 to Leu-87.		AR039: 3, AR060: 3, AR089: 2, AR096: 2, AR055: 1, AR104: 1, AR033: 1, AR053: 1, AR061: 1, AR052: 0 H0538: 4, S0374: 4, S0444: 2, L0748: 2, S0442: 1, S0358: 1, H0156: 1, L0803: 1, L0774: 1 and L0608: 1.			182-208	
1139	HFPAB23	887054	1149	55 - 417	2554	Met-1 to Ile-11, Ser-21 to Val-26, Asn-42 to Asp-50, Gln-57 to Val-66, Gly-88 to Ala-98.		AR052: 7, AR061: 6, AR104: 5, AR055: 5, AR033: 5, AR060: 5, AR089: 4, AR096: 4, AR053: 2, AR039: 2			103-121	

1140	HWAGL92	887056	1150	769 - 185	2555	Pro-22 to Gly-28, Gln-32 to Gln-38, Ser-60 to Phe-68, Cys-104 to Tyr-110, Lys-163 to Ser-172, Ser-175 to His-182, Gln-185 to Trp-194.	H0171: 2, L0747: 2, H0624: 1, S6016: 1, S0222: 1, S0010: 1, H0620: 1, L0666: 1, L0665: 1 and L0777: 1.				127-160, 80-96, 44- 60
							AR096: 16, AR033: 6, AR039: 6, AR053: 6, AR055: 4, AR052: 4, AR089: 4, AR060: 3, AR061: 2, AR104: 2 H0692: 7, L0766: 5, H0393: 3, H0250: 3, H0581: 3, L0779: 3, L0755: 3, S0354: 2, S0408: 2, L0754: 2, S0358: 1, S0376: 1, S0360: 1, H0640: 1, H0574: 1, H0486: 1, H0013: 1, H0004: 1, H0421: 1, H0239: 1, H0252: 1, H0031: 1, H0553: 1, H0644: 1, H0634: 1, S0144: 1, S0344: 1, L0794: 1, L0803: 1, L0804: 1, L0775: 1, L0653: 1, L0659: 1, S0374: 1, H0518: 1, S0044: 1, S0404: 1, H0555: 1, L0748: 1, L0756: 1, L0777: 1, L0752: 1, L0599: 1, H0653: 1 and H0506: 1.				

1141	HADME31	887280	1151	126 - 443	2556		AR096: 6, AR055: 6, AR039: 5, AR089: 5, AR033: 5, AR053: 5, AR060: 5, AR061: 5, AR052: 4, AR104: 3 L0747: 7, L0750: 6, L0770: 4, L0758: 4, L0769: 3, L0774: 2, L0748: 2, L0759: 2, S6024: 1, S0356: 1, S0360: 1, S0408: 1, H0333: 1, H0559: 1, H0486: 1, S0280: 1, H0390: 1, H0545: 1, L0471: 1, S0440: 1, H0641: 1, L0763: 1, L0775: 1, L0783: 1, L0809: 1, H0144: 1, H0690: 1, H0521: 1, S3012: 1, L0749: 1, L0752: 1 and L0590: 1.			88-105
1142	HEGBA84	887341	1152	17 - 1186	2557	Ser-17 to Ser-23, Gly-44 to Pro-50.	AR039: 27, AR033: 17, AR089: 17, AR104: 16, AR053: 16, AR055: 15, AR060: 13, AR052: 12, AR096: 12, AR061: 9 L0769: 5, L0779: 4, L0759: 4, L0770: 3, L0775: 3, L0776: 3, L0439: 3, L0740: 2, L0747: 2, L0777: 2, L0601: 2, S0418: 1, L0429: 1, H0550: 1, H0253: 1, H0081: 1, H0207: 1,			145-162, 116-132

1143	HWHPM7 4	887540	1153	116 - 1048	2558	Gln-71 to Tyr-78, Pro-130 to Ser-135.	H0646: 1, L0764: 1, L0773: 1, L0768: 1, L0549: 1, L0381: 1, L0774: 1, L0375: 1, L0783: 1, S0052: 1, H0547: 1, H0658: 1, H0521: 1, H0555: 1, S0028: 1, L0751: 1, L0752: 1 and L0755: 1. AR096: 10, AR089: 7, AR060: 5, AR055: 5, AR053: 5, AR061: 5, AR039: 4, AR033: 4, AR104: 3, AR052: 2 H0494: 5, L0777: 3, L0747: 2, H0586: 1, H0587: 1, H0038: 1, L0768: 1, L0389: 1, L0775: 1, L0376: 1, L0806: 1, H0519: 1, S0328: 1, S0330: 1, S014: 1, L0731: 1 and L0758: 1.				223-260, 18-34	
1144	HHIEU21	887582	1154	49 - 1041	2559	Glu-69 to Glu-74, Thr-78 to Arg-85, Lys-100 to Tyr-107, Pro-185 to Thr-194, Arg-249 to Ser-254, Thr-259 to Arg-269, His-289 to Ile-296, Thr-298 to Asp-303, Asn-312 to Ser-322.	AR096: 9, AR053: 7, AR089: 7, AR052: 6, AR060: 4, AR033: 4, AR039: 4, AR055: 3, AR104: 3, AR061: 2 H0422: 4, H0542: 3, H0591: 2, H0423: 2, H0125: 1, H0486: 1, H0634: 1 and H0436: 1.				221-251, 3-19, 49- 65	



1145	HKLSC61	887803	1155	407 - 757	2560	Lys-14 to Ser-20, Pro-34 to Ser-39, Ser-89 to Ser-95.	AR039: 26, AR052: 20, AR053: 16, AR033: 14, AR104: 13, AR060: 12, AR055: 12, AR096: 12, AR061: 12, AR089: 12 H0251: 1, H0235: 1 and S0050: 1.			39-77, 68- 88
1146	HEOMP62	887943	1156	193 - 753	2561	Gln-13 to Lys-20, Lys-26 to Ala-34, Met-72 to Leu-78.	AR039: 38, AR053: 22, AR096: 20, AR104: 19, AR055: 19, AR033: 17, AR052: 15, AR089: 15, AR060: 11, AR061: 7 H0457: 4, L0794: 3, H0580: 2, S0344: 2, L0667: 2, L0809: 2, H0583: 1, S0116: 1, H0581: 1, H0421: 1, H0439: 1, H0179: 1, L0803: 1, L0804: 1, L0775: 1, L0659: 1, H0710: 1, S0190: 1 and L0747: 1.			36-69
1147	HLJEB18	888028	1157	328 - 1248	2562	Glu-14 to Ser-22, Thr-70 to Arg-76, Gln-90 to Gly-101, Asn-167 to Ser-172, Glu-179 to Ala-186, Val-193 to Gln-200, Leu-210 to Ser-217, Gln-239 to Gln-244, Glu-254 to Asn-266.	AR039: 61, AR104: 30, AR033: 27, AR053: 25, AR096: 23, AR089: 20, AR052: 20, AR055: 16, AR060: 15, AR061: 13 H0584: 26, H0265: 4, H0167: 3, S0114: 3, H0542: 3, H0556: 2, H0486: 2, T0042: 2, H0423: 2, H0575: 1.			276-307, 104-120

1148	HAMFN18	888042	1158	50 - 412	2563	Ser-31 to Gly-40.	1, H0581: 1, H0375: 1, H0553: 1, H0376: 1, H0591: 1, H0040: 1, H0264: 1, L0774: 1, L0775: 1, S0328: 1, L0754: 1, L0749: 1, L0750: 1 and H0422: 1.				
							AR096: 6, AR089: 6, AR052: 5, AR053: 5, AR033: 4, AR039: 4, AR055: 4, AR060: 3, AR104: 2, AR061: 2 H0497: 1, H0560: 1, S0028: 1 and H0667: 1.			50-68	
1149	HWAEU20	888047	1159	416 - 1183	2564	Ile-74 to Ser-86, Thr-136 to Lys-144, Lys-250 to Glu-256.	AR096: 6, AR033: 5, AR053: 4, AR052: 3, AR039: 3, AR089: 2, AR055: 2, AR061: 1, AR060: 1, AR104: 1 H0581: 1			99-126, 23-42, 1- 18, 218- 235, 157- 173, 52-68	
1150	HDPBG11	888121	1160	39 - 734	2565	Val-3 to Pro-8, Val-14 to Ile-19, Pro-23 to Gly-31, Ser-93 to Asp-100.	AR060: 6, AR039: 5, AR055: 5, AR089: 5, AR033: 4, AR053: 4, AR061: 4, AR096: 4, AR052: 2, AR104: 2 S0476: 41, H0271: 33, S0132: 14, H0521: 14, S0046: 13, H0623: 13, H0416: 7, H0634: 6, H0575: 5, H0522: 5, S0436: 5,			38-67	

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1151	HHFJ87	888142	1161	204 - 953	2566					H0666: 1, H0672: 1, S0378: 1, H0528: 1, S0044: 1, H0187: 1, S0032: 1, L0749: 1, L0750: 1, L0759: 1, S0434: 1, L0593: 1 and H0422: 1.				136-162, 176-204, 76-95, 108-124, 2-18
										AR055: 9, AR039: 5, AR053: 4, AR089: 4, AR060: 4, AR052: 4, AR061: 3, AR033: 3, AR104: 2, AR096: 2 L0666: 6, L0776: 4, H0039: 2, H0622: 2, L0633: 2, L0439: 2, S0354: 1, H0619: 1, H0357: 1, H0590: 1, S0010: 1, H0596: 1, L0644: 1, L0805: 1 and H0144: 1.				
1152	HWLEQ41	888156	1162	93 - 950	2567					AR089: 30, AR096: 29, AR104: 25, AR033: 22, AR052: 18, AR053: 14, AR060: 9, AR039: 6, AR055: 5, AR061: 4 S0354: 9, S0358: 3, H0494: 3, H0519: 2, H0521: 2, L0754: 2, H0170: 1, S0040: 1, S0114: 1, H0484: 1, H0483: 1, H0255: 1, S0376: 1, S0046: 1, H0619:				158-177, 132-150, 73-91, 193-209, 228-244, 253-269

1153	HTOIB37	888174	1163	773 - 1582	2568	Thr-155 to Cys-161, Arg-182 to Arg-194, Leu-209 to Lys-214.	1, H0549: 1, H0042: 1, S0474: 1, H0581: 1, H0052: 1, H0083: 1, L0773: 1, L0517: 1, L0383: 1, S0374: 1, S0152: 1, S3014: 1, L0751: 1, L0759: 1, H0543: 1 and H0422: 1.				76-92, 16- 32, 101- 117, 34- 50, 137- 153
1154	HTGBM16	888244	1164	96 - 1118	2569	Ser-74 to Gln-82, Ser-170 to Asn-178, His-186 to Ala-199, Arg-209 to Leu-216.	AR060: 57, AR055: 52, AR039: 40, AR104: 39, AR033: 37, AR053: 35, AR089: 30, AR061: 26, AR096: 12, AR052: 6 H0618: 4, H0254: 3, H0255: 3, L0748: 3, H0253: 2, H0617: 2, L0438: 2, L0361: 2, S0442: 1, S0360: 1, S0468: 1, H0370: 1, H0333: 1, H0581: 1, H0252: 1, H0032: 1, H0264: 1, H0413: 1, H0529: 1, L0768: 1, H0672: 1, L0777: 1 and H0542: 1.				231-250, 2-19, 43- 59, 100- 116

1155	HOUGB95	888279	1165	73 - 795	2570	Glu-69 to Ser-74, Glu-80 to Asp-88, Phe-98 to Leu-104, Gln-140 to Ala-148, Glu-153 to Leu-158, Ala-175 to Ala-197, Met-210 to Leu-223, Glu-225 to Leu-241.	1, H0586: 1, H0575: 1, T0082: 1, H0031: 1, H0644: 1, H0090: 1, H0551: 1, H0144: 1, H0435: 1, L0439: 1, L0755: 1 and L0595: 1. AR033: 3, AR089: 3, AR061: 3, AR060: 2, AR039: 2, AR096: 1, AR052: 1, AR104: 1, AR055: 1, AR053: 0 S0436: 7, H0551: 6, H0599: 5, L0756: 5, L0758: 5, L0759: 5, L0754: 4, L0747: 4, H0545: 3, S0003: 3, L0375: 3, H0144: 3, L0755: 3, S0442: 2, S0045: 2, H0013: 2, L0471: 2, H0373: 2, H0051: 2, H0560: 2, S0422: 2, L0768: 2, L0803: 2, L0659: 2, L0438: 2, L0439: 2, L0740: 2, L0750: 2, L0779: 2, L0757: 2, S0242: 2, H0739: 1, H0624: 1, S0040: 1, S0342: 1, S0116: 1, S0212: 1, S0444: 1, H0357: 1, H0587: 1, L0021: 1, S0010: 1, L0105: 1, S0474: 1, H0544: 1, H0046: 1, S0051: 1, H0266: 1, H0622: 1, H0032:				43-70, 4- 29, 107- 124
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1156	HTELC21	888321	1166	88 - 453	2571				1, H0388: 1, H0598: 1, H0413: 1, S0438: 1, H0641: 1, S0002: 1, L0662: 1, L0805: 1, L0809: 1, L0519: 1, L5623: 1, L0663: 1, L0664: 1, H0520: 1, S0126: 1, L0753: 1, S0434: 1, L0599: 1, S0011: 1 and H0667: 1.				12-37, 50-77, 85-101, 40-56
									AR053: 16, AR039: 15, AR033: 13, AR055: 13, AR052: 10, AR089: 10, AR061: 9, AR096: 7, AR060: 7, AR104: 4, H0253: 8, H0038: 4, H0616: 3, H0618: 2, L0758: 2, L0794: 1 and L0779: 1.				
1157	HTPGV36	888376	1167	2639 - 306	2572	Pro-51 to Ala-59.			AR104: 19, AR033: 18, AR089: 12, AR055: 9, AR060: 6, AR061: 6, AR096: 6, AR052: 5, AR053: 5, AR039: 4, H0695: 78, L0747: 13, H0013: 12, L0665: 11, L0662: 10, H0547: 10, L0592: 10, S0360: 8, H0545: 8, L0659: 8, L0666: 8, H0580: 7, S0010: 7, H0519: 7, L0748: 6, L0595:	Xp11.23	300047, 300071, 300110, 300600, 301000, 301000, 301830, 309470, 309500, 309610, 309850, 311050,	555-575, 536-552, 760-776	

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1158	HFTDC58	888528	1168	296 - 604	2573				1, S0032: 1, L0754: 1, L0779: 1, L0780: 1, L0731: 1, L0758: 1, S0031: 1, L0581: 1, L0593: 1, L0366: 1, H0668: 1, H0665: 1, H0667: 1, S0192: 1, S0194: 1 and H0423: 1.				53-73	
									AR052: 2, AR033: 2, AR053: 2, AR096: 1, AR089: 1, AR060: 1, AR039: 0, AR061: 0, AR104: 0 H0599: 2, S0474: 2, H0266: 2, L0759: 2, H0556: 1, H0638: 1, S0418: 1, H0733: 1, S6022: 1, L0021: 1, S0010: 1, H0581: 1, H0123: 1, H0050: 1, H0024: 1, H0553: 1, H0644: 1, H0708: 1, L0763: 1, L0641: 1, L0766: 1, L0805: 1, L0655: 1, H0539: 1, S0028: 1, L0756: 1 and L0777: 1.					
1159	HMUAG30	888542	1169	1399 - 449	2574	Pro-23 to Pro-36, Asp-54 to Asp-61, Gln-67 to Gly-76.			AR033: 5, AR089: 5, AR061: 4, AR052: 4, AR060: 3, AR055: 2, AR053: 2, AR039: 2, AR104: 2, AR096: 1, H0592: 1, H0497: 1.				253-282, 201-228, 124-146, 163-179, 231-247	

1160	HCBME31	888903	1170	79 - 624	2575	Pro-51 to Ser-58.	H0553: 1, H0628: 1, H0488: 1, H0529: 1, S0310: 1, H0435: 1 and L0439: 1. AR096: 3, AR055: 2, AR089: 1, AR052: 1, AR053: 1, AR060: 1, AR061: 1, AR104: 1, AR033: 1, AR039: 1 S0002: 2, L0785: 1, H0661: 1, H0587: 1, H0635: 1, H0051: 1, S0003: 1, S0438: 1, S0344: 1, L0761: 1, L0649: 1, L0792: 1 and L0731: 1.				70-95, 29-45, 1-17
1161	HPMGA51	888905	1171	1129 - 644	2576	Pro-49 to His-57, Pro-64 to Asp-73, Thr-100 to Arg-106, Lys-145 to Glu-151.	AR055: 4, AR096: 3, AR060: 3, AR053: 3, AR104: 2, AR052: 2, AR033: 2, AR089: 2, AR061: 1, AR039: 0 H0031: 2, L0600: 2, H0713: 1, S0052: 1, H0539: 1, S0436: 1 and L0603: 1.				104-131
1162	HDQDC13	888998	1172	5 - 643	2577	Gln-15 to Gly-23.	AR053: 2, AR052: 1, AR033: 1, AR096: 1, AR089: 0, AR060: 0, AR061: 0, AR055: 0, AR104: 0, AR039: 0 L0766: 7, H0556: 6, L0662: 4, L0789: 4, L0438:	16p12-pl1	108730, 147781, 172471, 186580, 266600, 600760, 600760.	173-189, 105-121	

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1163	HLHFX80	889324	1173	81 - 473	2578	Arg-16 to Ser-25, Phe-30 to Asp-38, Gln-97 to Lys-104, Ser-113 to His-119.	1, H0423: 1 and L0600: 1. AR039: 2, AR096: 2, AR060: 1, AR053: 1, AR089: 1, AR104: 1, AR033: 1, AR061: 0, AR055: 0, AR052: 0 H0556: 1, L0534: 1, H0431: 1, H0024: 1 and S0428: 1.			61-81
1164	HSLKC45	889371	1174	124 - 1245	2579	Ser-75 to Leu-81, Arg-101 to Ala-112, Gln-162 to Asn-172, Tyr-178 to Leu-197, Glu-204 to Arg-219, Arg-252 to Ile-269, Pro-271 to Asp-280, Glu-297 to Lys-303, Glu-313 to Asn-325, Ser-354 to Gly-365.	AR055: 7, AR033: 7, AR060: 5, AR052: 4, AR089: 4, AR061: 4, AR053: 4, AR096: 3, AR104: 2, AR039: 2 H0545: 2, L0659: 2, H0265: 1, H0556: 1, H0295: 1, S0418: 1, S0420: 1, S0358: 1, L0717: 1, H0635: 1, H0551: 1, T0067: 1, H0494: 1, L0662: 1, L0804: 1, L0809: 1, S0126: 1, H0658: 1, H0521: 1, S0390: 1, L0780: 1, L0731: 1, S0436: 1 and H0423: 1.			220-252, 2-26
1165	H0GBN93	889792	1175	503 - 3	2580	Gly-52 to Ser-57, Phe-81 to Arg-89, Lys-125 to Gly-137.	AR039: 42, AR052: 40, AR053: 25, AR033: 24, AR104: 22, AR089: 20, AR096: 17, AR060: 13, AR061: 13, AR055: 12			59-78, 31- 51, 95- 112, 7-23, 146-162

1166	HTPHE46	889999	1176	96 - 653	2581	Glu-13 to Gln-22, Pro-86 to Asp-91, Arg-98 to Gly-104, Gln-170 to Cys-183.	H0521: 2, L0770: 1, L0766: 1, H0435: 1 and H0712: 1. AR039: 19, AR060: 12, AR096: 10, AR104: 9, AR053: 9, AR055: 9, AR033: 8, AR052: 7, AR089: 7, AR061: 5 S0414: 9, S0422: 7, L0662: 7, S0444: 6, L0748: 4, L0754: 4, L0581: 4, S0442: 3, H0031: 3, L0666: 3, H0656: 2, S0358: 2, S0360: 2, H0013: 2, L0471: 2, S0438: 2, S0440: 2, L0598: 2, L0803: 2, L0540: 2, L0756: 2, L0752: 2, L0758: 2, L0759: 2, S0242: 2, H0624: 1, S0282: 1, H0393: 1, H0586: 1, H0574: 1, H0036: 1, H0004: 1, T0103: 1, T0110: 1, H0571: 1, H0569: 1, H0123: 1, H0594: 1, S6028: 1, H0622: 1, UNKWN: 1, L0649: 1, L0381: 1, L0776: 1, L0659: 1, L0528: 1, L0792: 1, L0793: 1, L0663: 1, L0664: 1, L0665: 1, H0144: 1, S0374: 1, H0547: 1, H0593:				34-58, 63- 83
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1167	HTXQU08	890638	1177	218 - 661	2582	Pro-38 to Arg-44, Leu-88 to His-93, Asp-100 to Ser-106, Pro-119 to Cys-126.	1, H0690: 1, H0670: 1, H0648: 1, H0672: 1, H0651: 1, H0539: 1, S0378: 1, S0380: 1, H0521: 1, S0406: 1, H0555: 1, H0478: 1, L0744: 1, L0731: 1 and S0276: 1.				59-78
							AR055: 7, AR052: 5, AR053: 4, AR089: 4, AR060: 4, AR096: 3, AR061: 3, AR033: 3, AR039: 2, AR104: 1 H0271: 8, L0759: 4, L0779: 3, L0755: 3, H0222: 2, H0575: 2, H0705: 2, H0581: 2, L0803: 2, L0659: 2, L0790: 2, L0754: 2, L0749: 2, L0777: 2, H0556: 1, H0159: 1, T0049: 1, H0650: 1, S0045: 1, T0060: 1, H0046: 1, L0163: 1, S0051: 1, H0030: 1, H0553: 1, H0628: 1, H0038: 1, H0268: 1, H0059: 1, S0422: 1, H0529: 1, L0770: 1, L0667: 1, L0800: 1, L0641: 1, L0773: 1, L0662: 1, L0794: 1, L0766: 1, L0650: 1, L0375: 1, L0530: 1, L0791: 1, L0663: 1, S0216:				

1168	HE8MU78	890664	1178	126 - 1160	2583	Cys-21 to Asn-32, Leu-48 to Arg-53, Gln-154 to Leu-161, Pro-213 to Asp-220, Pro-257 to Glu-265, Lys-274 to Asn-281, Ala-326 to Pro-344.	1, S0380: 1, S0027: 1, L0748: 1, L0731: 1, L0757: 1, L0758: 1 and L0591: 1. AR096: 18, AR052: 15, AR089: 10, AR060: 9, AR053: 8, AR104: 5, AR033: 4, AR061: 4, AR055: 3, AR039: 2 T0006: 34, L0753: 8, H0013: 2, L0750: 2, T0082: 1, L0745: 1, L0779: 1 and L0759: 1.				281-316, 1-22
1169	HTNBJ17	890703	1179	498 - 824	2584	Gln-8 to Ser-13, Arg-21 to Ser-27, Glu-37 to Lys-42.	AR055: 5, AR096: 4, AR052: 4, AR053: 3, AR060: 3, AR061: 3, AR089: 3, AR033: 3, AR104: 2, AR039: 0 L0748: 12, L0747: 11, S0358: 10, L0766: 8, L0794: 6, L0740: 6, L0779: 6, H0556: 5, L0803: 5, L0749: 5, H0266: 4, L0743: 4, L0744: 4, L0758: 4, H0624: 3, H0265: 3, L0776: 3, S0404: 3, S3014: 3, L0752: 3, L0731: 3, L0599: 3, H0661: 2, L0005: 2, S0360: 2, H0580: 2, S0046: 2, H0645: 2, H0013: 2,				85-109



	H0599: 2, H0024: 2, H0644: 2, H0634: 2, L0646: 2, L0764: 2, L0527: 2, L0789: 2, L0665: 2, H0144: 2, H0690: 2, H0658: 2, L0750: 2, H0445: 2, L0605: 2, L0601: 2, S0342: 1, H0713: 1, H0717: 1, S0114: 1, S0282: 1, H0125: 1, S0356: 1, S0376: 1, S0045: 1, S0476: 1, H0619: 1, H0393: 1, H0261: 1, H0370: 1, H0592: 1, H0586: 1, H0574: 1, T0109: 1, H0250: 1, H0427: 1, H0575: 1, H0036: 1, S0010: 1, H0318: 1, H0196: 1, H0052: 1, H0309: 1, H0263: 1, H0544: 1, H0457: 1, H0050: 1, H0051: 1, S0024: 1, H0179: 1, S0003: 1, H0673: 1, H0674: 1, H0212: 1, H0124: 1, S0366: 1, H0135: 1, H0551: 1, T0067: 1, H0264: 1, H0413: 1, H0641: 1, L0769: 1, L0637: 1, L0761: 1, L0667: 1, L0648: 1, L0521: 1, L0662: 1, L0767: 1, L0774: 1, L0775: 1, L0805: 1, L0655: 1, L0513: 1	
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1170	HTTJZ84	890714	1180	1309 - 311	2585	Leu-2 to Asn-7, Glu-129 to Gly-137, Glu-279 to Lys-284, Pro-318 to Leu-333.	L0659: 1, L0517: 1, L0647: 1, L0787: 1, L0666: 1, L0663: 1, S0428: 1, H0547: 1, H0519: 1, H0689: 1, H0435: 1, H0670: 1, H0539: 1, S0152: 1, L0777: 1, L0755: 1, L0757: 1, S0436: 1, S0276: 1 and H0543: 1. AR055: 4, AR033: 3, AR061: 3, AR096: 3, AR052: 2, AR060: 2, AR089: 2, AR053: 1, AR104: 1, AR039: 0 S0474: 4, S0052: 4, H0265: 3, S0046: 3, S0344: 3, T0007: 2, S0132: 2, S0476: 2, H0253: 2, H0545: 2, H0551: 2, H0412: 2, L5623: 2, L0777: 2, L0757: 2, L0588: 2, S0446: 2, H0664: 1, H0489: 1, H0069: 1, H0635: 1, H0706: 1, H0618: 1, H0318: 1, H0581: 1, H0544: 1, H0023: 1, H0247: 1, H0271: 1, H0424: 1, H0628: 1, H0617: 1, H0634: 1, S0142: 1, S0210: 1, L0646: 1, L0773: 1, L0768: 1, L0804: 1, L0659: 1, L0666: 1, L0665: 1,					111-127, 205-221, 238-254
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1171	HLYBD96	890826	1181	23 - 964	2586	Phe-30 to Cys-36.	S0428: 1, H0435: 1, S0330: 1, H0521: 1, H0576: 1, S0027: 1, L0731: 1 and H0667: 1. AR055: 429, AR060: 304, AR033: 260, AR061: 208, AR089: 197, AR052: 148, AR104: 145, AR096: 138, AR053: 92, AR039: 64 L0794: 2, H0581: 1, H0179: 1, S0036: 1, L0789: 1, L0777: 1 and H0445: 1.	207-239, 39-61, 156-182, 119-138, 84-101, 256-273, 63-79	
1172	HDPPJ68	891362	1182	259 - 1230	2587	Gly-34 to Leu-39, His-41 to Pro-49, Gly-62 to Arg-67, Thr-80 to Gln-88, Met-181 to Glu-191, Leu-197 to Arg-206.	AR033: 4, AR060: 4, AR104: 2, AR061: 2, AR052: 1, AR089: 1, AR096: 0, AR053: 0, AR055: 0 L0761: 5, L0800: 4, L0794: 3, L0766: 3, L0803: 3, L0483: 2, H0264: 2, L0773: 2, L0789: 2, H0521: 2, L0748: 2, L0779: 2, L0758: 2, H0556: 1, S0114: 1, S0116: 1, S0282: 1, S0476: 1, H0497: 1, S6028: 1, H0288: 1, L0520: 1, L0764: 1, L0560: 1, L0552: 1, L0774: 1, L0523: 1, S0126: 1, H0522: 1, L0777: 1	293-321, 88-109, 125-150, 12-33, 229-245, 269-285, 158-174	

1173	HTTJT40	891742	1183	211 - 654	2588	Phe-61 to His-66.	1, L0759: 1, S0031: 1 and L0480: 1. AR039: 47, AR053: 32, AR052: 30, AR055: 29, AR033: 27, AR104: 27, AR089: 26, AR096: 20, AR060: 18, AR061: 12 L0771: 3, L0766: 3, L0783: 3, L0748: 3, L0749: 3, L0757: 3, L0758: 3, L0595: 3, H0031: 2, H0673: 2, L0369: 2, L0769: 2, S0374: 2, L0438: 2, H0547: 2, H0658: 2, H0696: 2, L0439: 2, L0750: 2, L0777: 2, L0596: 2, L0592: 2, H0543: 2, H0265: 1, H0713: 1, S0116: 1, H0661: 1, H0176: 1, S0444: 1, S0045: 1, H0640: 1, H0013: 1, S0010: 1, H0318: 1, H0232: 1, H0546: 1, H0065: 1, H0566: 1, H0024: 1, H0083: 1, H0266: 1, T0006: 1, H0617: 1, L0055: 1, H0165: 1, L0456: 1, H0040: 1, H0634: 1, H0551: 1, T0067: 1, H0100: 1, T0041: 1, H0560: 1, S0438: 1, S0440: 1, H0641: 1, S0144: 1,					1-27, 97- 118
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1174	HETDR50	891862	1184	650 - 120	2589	Ser-16 to Arg-23, Ser-152 to Asn-161, Thr-165 to Thr-170.	L0762: 1, L0763: 1, L0772: 1, L0648: 1, L0363: 1, L0767: 1, L0768: 1, L0651: 1, L0776: 1, L0636: 1, L0809: 1, L0545: 1, L0647: 1, L0793: 1, L0664: 1, H0435: 1, H0648: 1, H0436: 1, S014: 1, S0206: 1, L0742: 1, L0779: 1, L0752: 1, L0731: 1, S0260: 1, H0445: 1, S0434: 1, S0436: 1 and S0194: 1.	20p13	192340, 234200	43-74, 132-149, 24-41, 93- 109	
1175	HSLFZ79	892016	1185	173 - 1513	2590	Arg-171 to Thr-176, Met-216 to Asn-221, Glu-229 to Lys-235, Arg-348 to Trp-353,	AR055: 9, AR033: 9, AR060: 9, AR052: 7, AR104: 6, AR053: 6, AR061: 6, AR089: 6, AR096: 5, AR039: 3 H0090: 3, H0013: 2, H0046: 2, H0624: 1, H0170: 1, L0459: 1, S0222: 1, H0427: 1, S0010: 1, H0251: 1, H0596: 1, H0050: 1, H0014: 1, S0214: 1, H0412: 1, L0439: 1, L0759: 1 and S0436: 1.			1-26, 98- 119, 54- 75, 308- 324, 145-	

					Glu-372 to Thr-381, Lys-392 to Asp-398, Lys-435 to Glu-444.	AR104: 3, AR052: 2 L0748: 8, L0731: 8, L0747: 6, L0439: 4, L0779: 4, L0777: 4, H0341: 2, S0001: 2, S0386: 2, L0769: 2, L0771: 2, L0662: 2, L0803: 2, L0806: 2, L0776: 2, L0783: 2, L0666: 2, L0740: 2, L0758: 2, S0242: 2, S0040: 1, S0116: 1, H0497: 1, H0013: 1, H0599: 1, H0036: 1, H0620: 1, S0051: 1, T0010: 1, H0266: 1, H0316: 1, H0359: 1, S0438: 1, L0770: 1, L0761: 1, L0372: 1, L0764: 1, L0767: 1, L0794: 1, L0375: 1, L0652: 1, L0657: 1, L0659: 1, L0526: 1, L0789: 1, L0665: 1, H0547: 1, H0690: 1, H0648: 1, S0330: 1, S0380: 1, S0028: 1, L0749: 1, L0752: 1, L0759: 1, L0589: 1, L0608: 1, S0026: 1, S0196: 1 and S0446: 1.				161, 123- 139
1176	HDQGN46	892018	1186	265 - 1308	2591 Asp-53 to Tyr-61, Pro-105 to Ile-128, Arg-133 to Leu-140, Gln-182 to Ala-188,	AR053: 3, AR089: 1, AR033: 1, AR052: 1, AR096: 1, AR055: 1, AR060: 1, AR104: 1,				262-291, 4-27, 78- 96

1177	HDP RH64	892038	1187	820 - 155	2592	Pro-205 to Asn-218, Gly-259 to Ala-264, Asn-290 to Ser-302, Glu-307 to Tyr-314, Tyr-317 to Lys-332.	AR061: 0, AR039: 0 H0521: 5, L0804: 2, H0634: 1, S0440: 1 and H0522: 1.	14q11.2	182600, 186880, 190195, 190195, 222700, 600243, 602279, 602279	105-131, 48-70, 132-155, 165-181, 79-95, 1- 17	
						Trp-98 to Arg-105, Trp-156 to Cys-162, Glu-184 to Met-205, Gln-207 to Val-216.	AR096: 3, AR060: 2, AR089: 2, AR033: 1, AR052: 1, AR061: 1, AR104: 0 L0740: 15, L0758: 6, H0539: 5, H0521: 4, L0744: 4, L0754: 4, S0434: 4, L0803: 3, L0774: 3, L0666: 3, L0748: 3, L0439: 3, L0752: 3, S0002: 2, S0426: 2, L0651: 2, L0659: 2, H0170: 1, S0354: 1, S0358: 1, S0360: 1, T0008: 1, T0060: 1, H0575: 1, H0618: 1, H0309: 1, H0457: 1, S0250: 1, H0553: 1, H0100: 1, H0494: 1, S0142: 1, L0369: 1, L0638: 1, L0761: 1, L0645: 1, L0771: 1, L0363: 1, L0767: 1, L0768: 1, L0775: 1, L0806: 1, L0776: 1, L0809: 1, L0663: 1, L0438: 1, H0689: 1, H0670: 1, S0390: 1, L0745: 1, L0746: 1, L0749: 1,				

1178	HPLAN49	892164	1188	70 - 1296	2593	Ser-52 to Arg-57, Gln-94 to Ser-99, Pro-191 to Gly-196, Thr-399 to Leu-406.	LO593: 1, H0136: 1, S0196: 1, H0423: 1 and S0456: 1. AR061: 4, AR052: 3, AR089: 2, AR060: 2, AR055: 2, AR096: 2, AR033: 1, AR053: 1, AR039: 1, AR104: 1 S0028: 6, S0260: 4, S0282: 3, S0031: 3, L0005: 2, L0476: 2, S0278: 2, H0592: 2, H0318: 2, H0617: 2, S0144: 2, S0428: 2, H0542: 2, H0624: 1, H0171: 1, S0134: 1, S0180: 1, S0354: 1, S0045: 1, S0005: 1, H0331: 1, S0049: 1, S0050: 1, H0416: 1, S0036: 1, H0164: 1, H0056: 1, S0150: 1, S0216: 1, S0044: 1, S0146: 1 and S0194: 1.			284-312, 1-22, 373- 398, 65- 84, 316- 332, 354- 370, 26-42
1179	HDPVB49	892654	1189	353 - 1336	2594	Val-14 to Lys-20, Gly-24 to Gly-31, Ala-33 to Val-40, Glu-140 to Phe-156, Ala-171 to Gln-184, Glu-300 to Lys-305.	AR055: 1, AR061: 1, AR060: 1, AR104: 1, AR033: 1, AR089: 1, AR052: 0, AR096: 0, AR053: 0, AR039: 0 H0521: 16, L0748: 13, L0655: 4, H0522: 4, H0575: 3, L0775: 3, L0754: 3, S0010: 2, H0644: 2, L0776: 11q13	102200, 106100, 131100, 131100, 131100, 131100, 133780, 147050, 153700, 161015,	271-297, 114-138, 184-205, 224-244, 49-65, 88- 104	



1180	HPJCP79	892826	1190	18 - 944	2595	Asp-25 to Gly-38, Leu-167 to Ser-172, Leu-277 to Ser-291.	2, L0666: 2, L0758: 2, L0605: 2, H0255: 1, S0358: 1, H0406: 1, H0550: 1, S0222: 1, H0441: 1, H0438: 1, S0280: 1, H0036: 1, H0309: 1, L0157: 1, H0050: 1, H0014: 1, S0051: 1, T0010: 1, H0375: 1, H0328: 1, T0006: 1, L0143: 1, H0063: 1, S0112: 1, S0142: 1, S0344: 1, L0770: 1, L0646: 1, L0773: 1, L0794: 1, L0803: 1, L0774: 1, L0606: 1, L0659: 1, L0791: 1, H0658: 1, S0328: 1, S0380: 1, H0555: 1, L0439: 1, L0750: 1, L0756: 1, L0777: 1 and S0436: 1.	164009, 168461, 168461, 168461, 180721, 180840, 191181, 193235, 209901, 232600, 259700, 259770, 600045, 600319, 600528, 601884		183-199, 5-21, 129- 145, 221- 237
						AR052: 6, AR055: 5, AR060: 5, AR033: 4, AR053: 4, AR089: 4, AR096: 4, AR104: 3, AR061: 3, AR039: 2, L0752: 4, L0754: 2, L0755: 2, H0265: 1, H0556: 1, T0040: 1, H0052: 1, H0544: 1, T0023: 1, H0591: 1, S0038: 1, H0100: 1, L0662: 1, L0663: 1, S0126: 1, S0152: 1, H0521: 1,				

1181	HHEVK59	893348	1191	297 - 743	2596	Ser-76 to Thr-84, Ala-126 to Glu-132.	L0744: 1 and H0653: 1. AR039: 4, AR052: 4, AR053: 3, AR089: 3, AR033: 3, AR096: 3, AR055: 3, AR060: 3, AR061: 2, AR104: 2 L0439: 10, L0803: 7, L0777: 7, H0052: 6, L0766: 6, S0356: 4, L0794: 4, L0751: 4, L0747: 4, L0731: 4, H0013: 3, H0551: 3, L0770: 3, L0805: 3, L0776: 3, L0665: 3, L0744: 3, L0748: 3, L0740: 3, L0754: 3, L0759: 3, S0222: 2, H0586: 2, H0156: 2, H0599: 2, H0163: 2, H0616: 2, S0002: 2, H0529: 2, L0768: 2, L0789: 2, H0144: 2, L0438: 2, H0682: 2, H0672: 2, L0749: 2, L0750: 2, L0755: 2, S0436: 2, L0591: 2, L0599: 2, H0170: 1, H0171: 1, H0556: 1, H0685: 1, H0583: 1, H0657: 1, S0212: 1, S0408: 1, S0007: 1, L0717: 1, H0549: 1, H0370: 1, H0575: 1, S0010: 1, H0546: 1, H0545: 1, H0009: 1, H0050: 1, H0620:	5p15.1-p14	108962, 123000	82-110, 132-148, 12-28
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1182	HMKAK61	893374	1192	121 - 1197	2597	Gly-26 to Asp-32, Phe-53 to Leu-58, Asn-63 to Arg-86, Ser-91 to Gln-99, Gly-133 to Asn-139, Glu-144 to Arg-151, Asp-242 to His-250, Pro-319 to Asp-326, Asn-352 to Lys-358.	1, H0201: 1, S0051: 1, H0083: 1, S6028: 1, H0286: 1, H0622: 1, S0364: 1, H0135: 1, H0412: 1, H0494: 1, S0142: 1, S0210: 1, S0422: 1, L0796: 1, L3904: 1, L0646: 1, L0800: 1, L0764: 1, L0767: 1, L0804: 1, L0806: 1, L0655: 1, L0657: 1, L0659: 1, L5623: 1, L0787: 1, L0666: 1, S0052: 1, H0519: 1, H0365: 1, H0435: 1, H0659: 1, S0380: 1, S0037: 1, S0027: 1, S0028: 1, S0032: 1, H0445: 1, L0592: 1, S0011: 1, S0194: 1, H0543: 1 and H0423: 1.				218-235
						AR089: 36, AR039: 31, AR053: 25, AR033: 22, AR096: 20, AR052: 19, AR104: 17, AR060: 16, AR055: 14, AR061: 10 S0358: 11, S0406: 9, S0442: 6, S0440: 3, L0740: 3, S0408: 2, S0046: 2, H0421: 2, H0597: 2, S0210: 2, L0518: 2, S0374: 2, S0328: 2, S0027: 2, L0755: 2, H0445: 2, S0436: 2,					

1183	HWADM6 5	893492	1193	145 - 738	2598			L0596: 2, H0717: 1, H0716: 1, H0294: 1, S0114: 1, T0049: 1, H0341: 1, S0282: 1, H0484: 1, H0663: 1, S0420: 1, S0354: 1, S0376: 1, S0444: 1, S0360: 1, H0392: 1, H0497: 1, T0039: 1, T0109: 1, H0427: 1, H0618: 1, S0010: 1, S0049: 1, H0052: 1, H0014: 1, H0266: 1, S0003: 1, T0023: 1, H0673: 1, H0494: 1, H0633: 1, S0144: 1, S0344: 1, S0422: 1, S0002: 1, L0764: 1, L0542: 1, L5623: 1, S0148: 1, H0520: 1, S0330: 1, H0696: 1, L0743: 1, L0744: 1, L0748: 1, L0750: 1, L0757: 1, L0608: 1, L0601: 1, H0667: 1, S0196: 1, H0542: 1 and H0543: 1.  AR096: 5, AR053: 5, AR060: 4, AR052: 4, AR033: 3, AR055: 3, AR089: 2, AR061: 2, AR104: 2, AR039: 1 H0038: 2, S0114: 1, H0650: 1, H0341: 1, H0125: 1, H0581: 1, L0761: 1.				41-75
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1184	HLQFF81	893535	1194	168 - 530	2599	Gly-103 to Ser-114.	L0794: 1, L0766: 1, L0804: 1, L0806: 1, L0758: 1 and H0136: 1. AR055: 10, AR052: 6, AR053: 6, AR060: 5, AR089: 5, AR033: 5, AR061: 4, AR096: 4, AR039: 4, AR104: 4 L0805: 6, L0766: 5, L0758: 5, L0803: 4, L0794: 3, L0439: 3, L0774: 2, L0776: 2, L0517: 2, L0748: 2, L0751: 2, L0777: 2, L0731: 2, L0608: 2, L0594: 2, H0170: 1, H0171: 1, H0657: 1, H0656: 1, S0442: 1, H0369: 1, H0261: 1, S0222: 1, H0574: 1, H0632: 1, T0040: 1, L0021: 1, H0575: 1, S0010: 1, H0318: 1, H0046: 1, L0126: 1, S0051: 1, S6028: 1, L0142: 1, H0628: 1, H0090: 1, H0038: 1, H0269: 1, H0100: 1, S0438: 1, H0633: 1, L0369: 1, L0637: 1, L3905: 1, L0761: 1, L0768: 1, L0649: 1, L0804: 1, L0652: 1, L0653: 1, L0659: 1, L0809: 1, L0788: 1, L0789:					66-86, 21- 37
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1185	HDPIG80	893789	1195	207 - 791	2600	Pro-101 to Gly-109.	1, L0438: 1, H0547: 1, H0539: 1, S0152: 1, H0521: 1, L0750: 1, L0756: 1, L0779: 1, H0445: 1 and L0485: 1. AR039: 12, AR104: 12, AR033: 10, AR089: 9, AR096: 8, AR055: 7, AR060: 7, AR052: 7, AR053: 7, AR061: 5 L0789: 5, L0758: 4, S0356: 3, L0663: 3, H0539: 3, S0418: 2, H0424: 2, H0494: 2, S0440: 2, L0806: 2, L0664: 2, H0648: 2, S0028: 2, L0751: 2, L0749: 2, L0595: 2, T0002: 1, H0685: 1, H0295: 1, H0294: 1, S0001: 1, S0348: 1, S0360: 1, S0046: 1, S0132: 1, H0592: 1, H0587: 1, H0492: 1, L0622: 1, H0156: 1, H0575: 1, H0618: 1, H0581: 1, H0309: 1, H0050: 1, L0471: 1, H0620: 1, H0024: 1, S0051: 1, H0594: 1, H0266: 1, H0292: 1, H0284: 1, T0006: 1, H0628: 1, H0040: 1, H0268: 1, H0056: 1, H0561: 1, H0509:					146-169, 52-70, 171-187, 24-40, 114-130
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1186	HOELW53	893798	1196	1829 - 1284	2601	Tyr-2 to Pro-20, Gln-160 to Asp-182.	1, S0210: 1, H0529: 1, L0763: 1, L0770: 1, L0639: 1, L3904: 1, L0646: 1, L0643: 1, L0771: 1, L0662: 1, L0768: 1, L0794: 1, L0803: 1, L0804: 1, L0378: 1, L0805: 1, L0527: 1, L0382: 1, L0530: 1, L0666: 1, H0547: 1, H0711: 1, H0682: 1, S0380: 1, H0521: 1, H0696: 1, S0406: 1, L0754: 1, L0777: 1, L0755: 1, H0667: 1, S0192: 1 and S0242: 1.					101-122, 62-83, 132-150, 43-60, 23- 39
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	H0643: 2, H0618: 2, H0083: 2, H0561: 2, L0761: 2, L0767: 2, L0775: 2, H0144: 2, S0126: 2, L0740: 2, L0751: 2, L0757: 2, H0713: 1, H0656: 1, L0785: 1, S0001: 1, S0282: 1, H0661: 1, S0356: 1, S0376: 1, S0045: 1, H0619: 1, S0278: 1, S0222: 1, H0607: 1, H0253: 1, H0009: 1, H0050: 1, H0620: 1, H0071: 1, T0010: 1, H0099: 1, H0615: 1, H0428: 1, H0135: 1, H0090: 1, H0591: 1, H0551: 1, H0413: 1, H0056: 1, H0623: 1, L0564: 1, L0475: 1, H0509: 1, H0646: 1, S0344: 1, H0529: 1, L0369: 1, L0667: 1, L0662: 1, L0768: 1, L0803: 1, L0774: 1, L0378: 1, L0805: 1, L0661: 1, L0657: 1, L0788: 1, L0663: 1, L0665: 1, S0374: 1, L0438: 1, H0682: 1, H0648: 1, S0380: 1, H0710: 1, H0478: 1, L0754: 1, L0599: 1, H0668: 1, S0026: 1, H0136: 1 and H0008: 1.
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1187	HUSID53	893863	1197	50 - 394	2602	Lys-9 to Arg-16, Gly-37 to Asn-45.	AR096: 3, AR052: 2, AR060: 2, AR104: 1, AR089: 1, AR033: 1, AR053: 1, AR061: 1, AR055: 1, AR039: 0 H0522: 2, H0052: 1, H0412: 1, L0794: 1, L0803: 1, H0651: 1, H0521: 1, L0748: 1, L0749: 1 and L0752: 1.				51-68
1188	HDPFZ30	894151	1198	110 - 880	2603		AR039: 7, AR033: 6, AR089: 5, AR053: 5, AR055: 4, AR096: 4, AR104: 4, AR052: 4, AR060: 3, AR061: 3 H0250: 5, H0580: 2, L0770: 2, L0438: 2, L0439: 2, L0754: 2, S0114: 1, H0459: 1, H0489: 1, S0278: 1, H0069: 1, H0318: 1, H0123: 1, L0471: 1, H0071: 1, H0328: 1, H0634: 1, T0067: 1, L0351: 1, H0560: 1, S0142: 1, S0344: 1, S0426: 1, L0763: 1, L0769: 1, L0761: 1, L0662: 1, L0363: 1, L0364: 1, L0794: 1, L0805: 1, L0789: 1, L0666: 1, L0664: 1, S0126: 1, H0658: 1, H0670: 1,				193-212, 23-43, 48- 74, 83- 101, 103- 119, 164- 180

1189	HE8CW35	894153	1199	22 - 555	2604	Met-1 to Lys-19, Lys-29 to Gly-58, Ala-60 to Gly-88, Ala-90 to Asp-97.	H0521: 1, H0522: 1, S0044: 1, H0555: 1, H0576: 1, L0748: 1 and L0755: 1.				144-166
1190	HE9SE46	894178	1200	332 - 1066	2605	Ala-29 to Asp-35, Pro-81 to Cys-89, Leu-108 to Gly-119, Glu-125 to Ala-138, Ser-140 to Asn-146, Asp-163 to Glu-174, Ser-180 to Gly-187, Lys-224 to Arg-229, Ile-231 to Tyr-238.	AR033: 2, AR061: 1, AR055: 1, AR089: 1, AR052: 1, AR060: 1, AR053: 1, AR104: 0, AR096: 0, AR039: 0 L0776: 21, L0777: 14, L0439: 12, L0752: 9, L0438: 8, L0591: 7, L0805: 5, L0771: 4, L0803: 4, L0774: 4, S0360: 3, H0013: 3, L0731: 3, L0415: 2, H0052: 2, H0024: 2, S0386: 2, L0663: 2, L0745: 2, L0756: 2, L0596: 2, L0608: 2, S0212: 1, S0222: 1, H0586: 1, H0156: 1, H0596: 1, H0050: 1, S0050: 1,				192-221

1191	HBHMH72	894186	1201	38 - 1711	2606	Ser-2 to Ala-10, Glu-12 to Leu-17, Gly-21 to Val-38.	<p>H0373: 1, S0051: 1, S6028: 1, H0188: 1, S0003: 1, H0031: 1, S0448: 1, S0306: 1, S0440: 1, L0369: 1, L0763: 1, L0773: 1, L0381: 1, L0775: 1, L0659: 1, H0144: 1, T0068: 1, H0547: 1, H0660: 1, S0330: 1, S0406: 1, L0754: 1, L0746: 1, L0750: 1, L0779: 1, L0755: 1, S0260: 1 and H0665: 1.</p> <p>AR096: 2, AR039: 1, AR033: 1, AR089: 0, AR061: 0, AR053: 0, AR104: 0, AR060: 0, L0749: 5, H0052: 3, H0688: 3, H0090: 3, L0744: 3, L0748: 3, L0439: 3, H0341: 2, L0005: 2, L0665: 2, H0593: 2, L0743: 2, L0751: 2, L0599: 2, T0002: 1, S6024: 1, H0722: 1, S0220: 1, T0040: 1, H0013: 1, H0318: 1, H0251: 1, T0110: 1, H0375: 1, H0266: 1, H0687: 1, L0142: 1, S0112: 1, S0144: 1, S0002: 1, H0529: 1, L0763: 1, L0772: 1, L0768: 1, L0766: 1</p>				219-235, 513-529, 66-82, 190-206, 41-57
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1192	HWAHA1 1	894203	1202	90 - 614	2607		1, L5564: 1, L0776: 1, S0310: 1, L0438: 1, S0152: 1, H0521: 1, H0187: 1, H0576: 1, S0027: 1, L0740: 1, L0750: 1, L0596: 1, L0591: 1 and L0592: 1.				111-133, 43-63, 72- 98, 137- 160
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1193	HLWAH05	894289	1203	652 - 1503	2608		AR061: 2, AR053: 2, AR096: 2, AR060: 1, AR089: 1, AR052: 1, AR033: 1, AR104: 1, AR039: 1, AR055: 0 H0586: 5, L0751: 2, H0170: 1, H0662: 1, H0638: 1, H0575: 1, H0271: 1, H0553: 1, H0477: 1, H0641: 1, S0002: 1, H0529: 1, L0641: 1, L0803: 1, L0793: 1, H0547: 1, H0689: 1 and H0543: 1.	22q13.1	103050, 103050, 124030, 124030, 138981, 182380, 188826, 190040, 190040, 190040	148-164
1194	HUJCH47	894599	1204	687 - 1283	2609		AR052: 4, AR053: 3, AR033: 1, AR055: 1, AR060: 1, AR061: 0, AR096: 0, AR089: 0, AR039: 0, AR104: 0 H0650: 1, S0420: 1 and H0599: 1.			85-101
1195	HDPCI84	894601	1205	120 - 1091	2610	Leu-90 to Gln-96, Asp-109 to Thr-114, Ile-126 to Lys-133, Val-194 to Arg-207, Asp-219 to Asp-234, Glu-296 to Tyr-304.	AR053: 3, AR060: 3, AR089: 2, AR052: 2, AR039: 2, AR055: 2, AR096: 1, AR033: 1, AR104: 1, AR061: 1 H0521: 4, L0803: 3, S0358: 2, H0489: 2, H0046: 2, S0440: 2, L0794: 2, L0666: 2, H0144: 2, S0126:			138-154

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1198	HBINP48	894737	1208	252 - 644	2613		L0757: 1, S0436: 1 and S0194: 1, AR033: 11, AR061: 11, AR089: 8, AR060: 6, AR104: 5, AR055: 4, AR096: 3, AR052: 3, AR053: 2, AR039: 1 L0751: 7, L0769: 6, L0750: 5, L0752: 5, H0052: 4, L0771: 4, L0775: 4, L0758: 4, H0556: 3, L0665: 3, H0486: 2, S0010: 2, H0620: 2, T0006: 2, H0181: 2, H0494: 2, L0774: 2, L0375: 2, L0776: 2, L0512: 2, L0659: 2, H0555: 2, S0206: 2, L0740: 2, L0747: 2, L0596: 2, L0588: 2, S0276: 2, H0624: 1, S0402: 1, T0049: 1, H0341: 1, H0662: 1, S0358: 1, S0376: 1, S0360: 1, S0045: 1, S0476: 1, L0717: 1, H0351: 1, S0222: 1, H0455: 1, T0114: 1, L0021: 1, H0618: 1, T0048: 1, H0318: 1, L0109: 1, H0309: 1, H0544: 1, H0546: 1, H0545: 1, H0009: 1, H0123: 1, L0471: 1, H0424: 1, H0031: 1,			55-73, 6- 22, 82-98, 24-40
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1199	HCQDE22	894831	1209	326 - 841	2614	Ile-128 to Gly-134, Phe-145 to Thr-150.	H0628: 1, H0617: 1, H0663: 1, H0059: 1, H0100: 1, H0625: 1, H0633: 1, H0646: 1, H0517: 1, L0770: 1, L0764: 1, L0766: 1, L0655: 1, L0657: 1, L0559: 1, L0526: 1, L0783: 1, L0809: 1, L0544: 1, L0529: 1, L0664: 1, S0428: 1, H0520: 1, H0593: 1, S0126: 1, H0682: 1, H0659: 1, H0670: 1, H0648: 1, L0611: 1, S0432: 1, L0756: 1, L0757: 1, S0436: 1 and S0194: 1.					25-53, 88- 104, 8-24, 52-68
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1201	HTPGG10	895024	1211	111 - 530	2616	Ser-29 to Ser-34.	1, H0538: 1, L0804: 1, L0657: 1, L0790: 1, L0791: 1, L0666: 1, L0664: 1, H0519: 1, H0659: 1, L0747: 1, L0749: 1, L0779: 1, L0777: 1, L0755: 1 and L0731: 1.				1-29, 114- 137, 81- 101, 35-51
1202	HFPB92	895129	1212	276 - 620	2617	Lys-108 to Ser-113.	AR055: 8, AR060: 7, AR061: 4, AR053: 4, AR089: 3, AR052: 3, AR033: 3, AR039: 3, AR104: 2, AR096: 1 H0622: 7, S0360: 3, L0809: 3, L0804: 2, L0774: 2, L0775: 2, L0748: 2, H0484: 1, H0014: 1, S0440: 1, L0646: 1, L0643: 1, L0374: 1, L0764: 1, L0771: 1, L0773: 1, L0662: 1, L0803: 1 and L0788: 1.				1-20, 24- 47, 72-99

1203	HLWBY26	895166	1213	61 - 1158	2618	Pro-21 to Pro-39.	1, S0346: 1, L0471: 1, H0051: 1, S0036: 1, L0770: 1, L0658: 1, L0666: 1, H0519: 1, H0555: 1 and L0779: 1.				292-323
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1204	HKAHR43	895539	1214	105 - 2606	2619	Cys-132 to Gly-138, Asn-176 to Met-183, Leu-217 to Val-222, Gln-349 to Thr-354, Glu-406 to Tyr-414, Gln-416 to Tyr-424, Arg-457 to Lys-466, Gln-545 to Glu-552, Gln-576 to Gln-586, His-669 to Val-674, Lys-801 to Thr-821.	1 and H0665: 1, AR096: 9, AR061: 7, AR052: 6, AR053: 5, AR089: 5, AR039: 4, AR033: 3, AR104: 3, AR060: 3, AR055: 3, L0771: 6, H0494: 4, S0358: 3, L0803: 3, L0518: 2, L0666: 2, S0354: 1, H0239: 1, H0553: 1, H0181: 1, H0617: 1, H0488: 1, L0648: 1, L0662: 1, L0774: 1, L0659: 1, L0665: 1, H0658: 1, H0648: 1, S0152: 1, S0404: 1 and S0434: 1.			145-176, 422-454, 471-506, 101-131, 779-801, 2-23, 246- 262
1205	HLDCE43	895550	1215	145 - 627	2620		AR033: 28, AR053: 27, AR089: 23, AR052: 20, AR039: 20, AR055: 14, AR060: 13, AR061: 12, AR096: 10, AR104: 8, L0751: 7, L0789: 5, L0758: 4, S0356: 3, L0663: 3, H0539: 3, S0418: 2, H0545: 2, H0594: 2, H0424: 2, H0494: 2, S0440: 2, L0806: 2, L0664: 2, H0648: 2, S0380: 2, S0028: 2, L0754: 2, L0749: 2, L0777: 2, L0595: 2, H0556: 1,			98-115, 132-149, 18-34

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1206	HFXKW18	895626	1216	528 - 2336	2621	Ala-39 to Arg-46, Lys-76 to Ile-81, Asn-143 to Trp-149, Asp-154 to Lys-173.	AR061: 3, AR096: 2, AR052: 1, AR089: 1, AR053: 1, AR060: 1, AR039: 1, AR055: 1, AR104: 0, AR033: 0 H0250: 3, S0031: 3, H0271: 2, S0260: 2, S0001: 1, S0282: 1, H0617: 1, L0367: 1, S0053: 1, S0390: 1, L0698: 1 and H0352: 1.			6-35, 281- 309, 393- 410, 573- 589, 84- 100, 432- 448, 542- 558
1207	HSKCP67	895644	1217	299 - 814	2622	Pro-4 to Gln-10, Pro-22 to Arg-28, Glu-63 to Arg-86.	AR055: 8, AR052: 6, AR060: 5, AR033: 4, AR061: 4, AR089: 3, AR096: 3, AR053: 3, AR039: 2, AR104: 2 H0333: 2, L0758: 2, H0619: 1, H0618: 1, H0505: 1, S0051: 1, H0271: 1, S0142: 1, S0027: 1 and L0742: 1.			138-163, 95-118
1208	HBGJ26	895700	1218	652 - 332	2623	Met-1 to Arg-6.	AR055: 11, AR033: 7, AR060: 6, AR052: 6, AR089: 6, AR061: 5, AR096: 4, AR053: 4, AR104: 2, AR039: 2 H0618: 11, L0743: 8, L0748: 6, L0754: 6, L0731: 6, H0545: 5, H0052: 4, H0546: 4, L0648: 4, L0662:			83-107, 53-69

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1209	HWHGQ4 6	895880	1219	514 - 1251	2624	Thr-60 to Ala-65, Leu-94 to Glu-99, Cys-182 to Trp-188.	1, L0644: 1, L0375: 1, L0378: 1, L0776: 1, L0493: 1, L0656: 1, L0788: 1, L0666: 1, H0593: 1, H0660: 1, S0332: 1, S0406: 1, H0555: 1, L0610: 1, S014: 1, L0744: 1, L0751: 1, L0756: 1, L0779: 1, L0752: 1, L0757: 1, S0434: 1, L0588: 1, L0603: 1 and S0456: 1.				27-61, 1- 27, 159- 181, 117- 142, 68- 87, 189- 205
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1210	HNTOA59	895940	1220	289 - 1455	2625	Ser-55 to Gln-67, Ser-95 to Arg-100,	2, L0752: 2, L0731: 2, L0759: 2, L0605: 2, H0170: 1, H0685: 1, L0459: 1, H0295: 1, S0418: 1, S0420: 1, S0356: 1, S0442: 1, S0408: 1, H0580: 1, H0729: 1, S0046: 1, S0300: 1, H0587: 1, H0042: 1, H0251: 1, H0545: 1, H0569: 1, H0024: 1, H0083: 1, H0288: 1, H0328: 1, H0428: 1, H0424: 1, H0644: 1, H0165: 1, H0135: 1, H0087: 1, H0100: 1, L0351: 1, H0625: 1, S0002: 1, L0646: 1, L0764: 1, L0768: 1, L0775: 1, L0375: 1, L0784: 1, L0806: 1, L0805: 1, L0606: 1, L0657: 1, L0519: 1, L0789: 1, L0664: 1, H0144: 1, H0690: 1, H0670: 1, H0539: 1, H0522: 1, H0696: 1, S0406: 1, H0436: 1, H0626: 1, S0027: 1, L0743: 1, L0751: 1, L0757: 1, L0592: 1, L0593: 1, H0542: 1, H0543: 1, H0423: 1 and S0412: 1.						209-237
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1212	HAMGN09	895968	1222	226 - 1077	2627	Phe-84 to Trp-90, Lys-182 to Ile-187, Ser-202 to Leu-214, Pro-232 to Ser-240, Phe-260 to Met-273.	AR052: 9, AR053: 8, AR096: 7, AR089: 5, AR104: 4, AR033: 4, AR060: 4, AR039: 4, AR055: 2, AR061: 2 H0032: 7, L0749: 6, L0755: 5, L0804: 4, L0775: 4, L0748: 4, L0803: 3, L0731: 3, S0408: 2, S0222: 2, H0266: 2, L0805: 2, S0152: 2, S3014: 2, L0747: 2, H0556: 1, H0657: 1, H0341: 1, H0638: 1, H0125: 1, S0418: 1, H0722: 1, H0728: 1, H0574: 1, H0486: 1, H0318: 1, H0421: 1, H0530: 1, H0083: 1, H0375: 1, S6028: 1, H0267: 1, H0615: 1, H0165: 1, H0598: 1, H0591: 1, H0038: 1, H0634: 1, H0413: 1, H0560: 1, S0002: 1, H0529: 1, L0796: 1, L0639: 1, L0773: 1, L0375: 1, L0806: 1, L0653: 1, L0655: 1, L0657: 1, L0809: 1, L5623: 1, L0664: 1, H0144: 1, H0518: 1, H0522: 1, L0756: 1, L0758: 1, L0759: 1, L0588: 1, H0667: 1 and H0543: 1.				150-167
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1213	HHEDS40	896083	1223	161 - 1567	2628	Glu-19 to Lys-30, Ser-130 to Lys-136, Asp-156 to Cys-164, Asn-166 to Lys-172, Glu-233 to Ser-243, Leu-311 to Glu-322, Asp-331 to Thr-352, Thr-363 to Ala-376, Pro-385 to Pro-390.	AR096: 3, AR089: 3, AR053: 3, AR060: 2, AR033: 2, AR039: 1, AR104: 1, AR055: 1, AR061: 1, AR052: 1 L0766: 8, L0769: 4, L0794: 4, L0803: 4, L0748: 3, L0749: 3, H0266: 2, L0764: 2, H0144: 2, L0777: 2, L0731: 2, H0445: 2, L0596: 2, H0543: 2, H0556: 1, S0116: 1, H0638: 1, H0580: 1, S0045: 1, T0039: 1, S6028: 1, H0267: 1, H0622: 1, L0483: 1, S0036: 1, H0135: 1, H0561: 1, L0761: 1, L0806: 1, L0805: 1, L0657: 1, L0666: 1, S0053: 1, S0330: 1, H0539: 1, S3014: 1, L0779: 1, L0757: 1, L0593: 1, H0542: 1 and S0424: 1.			431-449, 94-110
1214	HBMBF28	896325	1224	185 - 1021	2629	Leu-6 to Glu-11, Thr-13 to Pro-20, Glu-86 to Ala-92, Gln-95 to Leu-104, Glu-110 to Lys-116, Gln-173 to Phe-178, Gln-242 to Glu-261, Arg-267 to Tyr-279.	AR055: 406, AR060: 202, AR033: 149, AR039: 134, AR089: 128, AR061: 101, AR096: 99, AR104: 79, AR053: 73, AR052: 0 H0521: 9, L0508: 4, S0410: 3, S0474: 3, H0413: 3, L0766: 3, L0608: 3,			66-85, 26- 42, 212- 228

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1218	HSLJD02	896743	1228	850 - 53	2633	Leu-32 to Gln-37, Phe-141 to Gly-146, Gln-261 to Ala-266.	I and L0747: 1. AR039: 1, AR089: 1, AR096: 1, AR055: 1, AR033: 1, AR061: 1, AR060: 0, AR053: 0, AR052: 0, AR104: 0 S0390: 1			235-260, 9-32, 146- 168, 77- 96, 175- 193, 116- 133, 206- 222
1219	HNHOF94	896802	1229	769 - 284	2634	Pro-87 to Ser-95.	AR096: 16, AR052: 15, AR089: 13, AR033: 8, AR060: 8, AR053: 8, AR104: 8, AR055: 5, AR061: 5, AR039: 5 S0216: 1			110-126, 50-66
1220	H2CBM85	896826	1230	393 - 860	2635	Ala-85 to Val-92.	AR052: 64, AR096: 42, AR053: 40, AR089: 29, AR060: 23, AR039: 23, AR033: 17, AR104: 13, AR055: 12, AR061: 11 S0028: 19, S0031: 9, S0052: 8, S0050: 7, L0105: 5, S0282: 4, H0381: 3, S0045: 3, S0278: 3, H0271: 3, H0617: 3, S0428: 3, S0001: 2, S0049: 2, H0196: 2, H0179: 2, S0038: 2, S0144: 2, S0044: 2, S0390: 2, S0206: 2, S0260: 2, L0591: 2, L0362: 2, L0361:			64-81

1221	HSLJC45	896843	1231	158 - 760	2636	Thr-3 to Gly-43, Thr-55 to Gln-61, Pro-71 to Ala-77, Pro-112 to Val-121, Thr-183 to His-188, Trp-195 to Thr-201.	2, L0603: 2, S0035: 1, S0046: 1, H0333: 1, H0253: 1, H0318: 1, T0110: 1, H0046: 1, H0266: 1, H0416: 1, H0031: 1, H0180: 1, H0181: 1, H0383: 1, H0169: 1, S0036: 1, H0135: 1, H0163: 1, H0634: 1, H0164: 1, L0374: 1, L0379: 1, S0126: 1, H0658: 1, S0152: 1, S0037: 1 and S3014: 1.	3p24.2	154705, 227646, 601154	147-164	
1222	HETJW92	896874	1232	109 - 432	2637		AR096: 37, AR060: 15, AR055: 12, AR089: 11, AR039: 11, AR033: 9, AR052: 6, AR061: 5, AR053: 5, AR104: 5, L0438: 3, H0018: 1, H0522: 1, S0390: 1 and L0439: 1. AR055: 15, AR060: 13, AR089: 11, AR061: 9, AR033: 8, AR096: 7, AR052: 6, AR053: 5, AR104: 4, AR039: 3, H0046: 9, S0152: 3, L0439: 3, L0751: 3, H0052: 2, H0646: 2, L0438: 2, L0608: 2, S0376: 1, S0360: 1, H0393: 1, H0575: 1,			1-25, 38- 57, 85-101	

1223	HTEMB02	896919	1233	97 - 828	2638	Arg-33 to Gly-39, Arg-76 to Gly-99, Lys-112 to Val-118, Tyr-135 to Lys-148, Arg-152 to Arg-157.	S0346: 1, T0006: 1, H0598: 1, H0040: 1, L0800: 1, L0382: 1, L0788: 1, S0374: 1, H0689: 1, H0690: 1, H0539: 1, S0037: 1 and L0759: 1. AR060: 353, AR104: 303, AR055: 289, AR039: 258, AR033: 219, AR061: 208, AR089: 160, AR052: 140, AR053: 111, AR096: 75 L0748: 13, H0052: 7, S0222: 6, H0616: 6, H0013: 5, H0144: 5, L0005: 4, S0010: 4, H0421: 4, H0090: 4, H0038: 4, H0040: 4, L0758: 4, H0486: 3, H0622: 3, L0747: 3, S0040: 2, H0662: 2, H0619: 2, H0156: 2, H0318: 2, H0328: 2, H0031: 2, H0163: 2, L0648: 2, L0649: 2, L0805: 2, L0666: 2, L0665: 2, H0690: 2, S0406: 2, L0777: 2, S0260: 2, S6024: 1, S0114: 1, S0212: 1, S0110: 1, S0001: 1, S0282: 1, S0442: 1, S0376: 1, S0360: 1, S0300: 1, H0549: 1, H0431: 1, H0438: 1, H0331: 1,					40-61, 2- 18
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1224	HCYAC03	896987	1234	1604 - 1005	2639	Cys-15 to Gly-36, Tyr-55 to Ser-66, Pro-74 to Ala-84, Gly-100 to Asp-108, Leu-177 to His-198.	H0575: 1, H0036: 1, H0581: 1, L0024: 1, H0263: 1, H0050: 1, L0471: 1, H0399: 1, H0188: 1, H0687: 1, S0003: 1, H0688: 1, H0428: 1, H0039: 1, H0092: 1, H0033: 1, H0628: 1, L0455: 1, S0036: 1, H0135: 1, H0591: 1, H0551: 1, H0264: 1, H0488: 1, H0059: 1, T0069: 1, T0041: 1, S0015: 1, S0016: 1, S0440: 1, H0641: 1, S0344: 1, S0002: 1, H0529: 1, L0763: 1, L0373: 1, L0662: 1, L0766: 1, L0659: 1, L0519: 1, L0530: 1, L0438: 1, H0519: 1, H0593: 1, H0689: 1, H0684: 1, H0672: 1, H0539: 1, S0392: 1, L0439: 1, L0750: 1, S0434: 1, L0596: 1, L0592: 1, L0362: 1, L0366: 1, S0194: 1, S0276: 1, H0543: 1, H0422: 1, H0506: 1 and H0352: 1.					114-140, 147-163, 1-17
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L0740: 5, L0777: 5, L0757:
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1225	HTTBH18	897055	1235	981 - 1325	2640	Thr-3 to Phe-14.	1, L0635: 1, L0517: 1, L0647: 1, L0788: 1, L0666: 1, L0665: 1, H0144: 1, S0374: 1, H0659: 1, H0672: 1, S0378: 1, H0696: 1, H0704: 1, H0436: 1, S0392: 1, H0478: 1, L0742: 1, L0743: 1, L0749: 1, L0731: 1, S0434: 1, L0601: 1, L0366: 1, S0026: 1, S0192: 1, H0542: 1, H0543: 1 and H0422: 1.					43-59, 18- 34
1226	H0GBM94	897226	1236	1660 - 296	2641	Gly-46 to Lys-52, Asp-242 to Ser-247, Arg-272 to Ala-281, Arg-371 to Pro-377, Ala-430 to Asp-435, Gln-441 to Thr-446.	AR033: 23, AR104: 15, AR055: 7, AR061: 5, AR060: 5, AR089: 4, AR053: 3, AR052: 3, AR096: 3, AR039: 3 H0457: 3 and H0040: 1. AR055: 5, AR039: 5, AR096: 4, AR033: 4, AR104: 4, AR052: 4, AR060: 4, AR053: 4, AR089: 4, AR061: 3 L0748: 8, L0439: 5, S0278: 4, L0770: 3, L0803: 3, L0665: 3, L0731: 3, S0040: 2, S0418: 2, H0250: 2, H0581: 2, H0622: 2, H0264: 2, H0056: 2, S0426:					144-168, 247-270, 385-412, 319-339, 208-225, 300-317, 282-299, 25-41, 114-130, 55-71, 91- 107

1227	HSLAS08	897262	1237	91 - 975	2642	Leu-79 to Thr-89, Pro-92 to Leu-99,	2, L0769: 2, L0662: 2, L0794: 2, L0659: 2, L0666: 2, L0663: 2, H0521: 2, H0522: 2, L0751: 2, L0747: 2, L0749: 2, L0758: 2, L0759: 2, L0593: 2, H0543: 2, H0265: 1, H0556: 1, H0657: 1, H0341: 1, S0110: 1, S0282: 1, H0484: 1, H0483: 1, H0255: 1, H0663: 1, S0007: 1, L0717: 1, H0261: 1, H0370: 1, H0586: 1, H0587: 1, H0559: 1, L0021: 1, H0575: 1, H0253: 1, H0545: 1, H0123: 1, H0012: 1, H0024: 1, H0083: 1, H0688: 1, H0617: 1, H0135: 1, H0488: 1, H0412: 1, H0413: 1, H0494: 1, S0150: 1, H0641: 1, H0652: 1, H0538: 1, L0667: 1, L0764: 1, L0766: 1, L0653: 1, H0519: 1, S0126: 1, H0435: 1, H0518: 1, S0190: 1, H0555: 1, S3012: 1, S0037: 1, L0744: 1, L0756: 1, L0779: 1, L0757: 1, L0592: 1 and H0668: 1.	19p13.2	108725, 120700,	1-22, 261- 285
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1228	HTLJA52	897328	1238	4 - 585	2643		AR055: 8, AR061: 5, AR060: 4, AR033: 4, AR089: 3, AR096: 3, AR053: 3, AR052: 3, AR104: 2, AR039: 0 L0758: 8, L0794: 5, L0779: 5, H0616: 3, H0618: 2, L0777: 2, H0038: 1 and L0768: 1.			43-59, 141-157
1229	HISCG60	897517	1239	1683 - 1102	2644		AR039: 28, AR089: 20, AR096: 17, AR104: 14, AR053: 12, AR033: 12, AR060: 11, AR052: 11, AR055: 6, AR061: 4 H0519: 9, H0547: 8, H0521: 7, S0126: 6, H0619: 5, H0457: 5, H0264: 5, H0529: 5, L0794: 5, H0520: 5, H0539: 5, H0543: 5, H0677: 5, S0007: 4, L0471: 4, H0083: 4, H0266: 4, L0455: 4, H0135: 4, H0090: 4, T0041: 4, T0042: 4, L0718: 4, H0341: 3, S0420: 3, S0046: 3, H0052: 3, H0050: 3, H0494: 3, H0561: 3, S0150: 3, H0641: 3, H0660: 3, S0027: 3, L0779: 3, H0624: 2, H0556: 2, S0040: 2, T0049: 2, S0134:			154-179, 122-147, 38-60, 79- 99, 11-27, 102-118

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H0717: 1, S0114: 1, H0650:  
1, H0484: 1, H0662: 1,  
H0450: 1, S0045: 1, S0132:  
1, H0393: 1, S0278: 1,  
H0431: 1, H0392: 1, H0357:  
1, H0486: 1, H0013: 1,  
H0156: 1, L0021: 1, H0004:  
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1230	HEBFI34	897852	1240	1140 - 424	2645	Gly-88 to Arg-93, Ser-133 to Tyr-138, Phe-189 to Gly-195, Thr-211 to Gly-227.	1, L0654: 1, L0664: 1, H0698: 1, H0689: 1, H0435: 1, H0658: 1, H0672: 1, S0330: 1, S0152: 1, L0356: 1, H0631: 1, S0037: 1, L0439: 1, L0745: 1, L0747: 1, L0759: 1, H0445: 1, S0434: 1, S0436: 1, L0595: 1, S0026: 1, H0136: 1, H0423: 1 and H0422: 1, AR089: 3, AR060: 3, AR033: 3, AR061: 2, AR104: 2, AR053: 2, AR055: 1, AR096: 1, AR052: 0, AR039: 0 L0748: 10, L0759: 6, S0436: 4, S0007: 3, S0126: 3, H0659: 3, S0028: 3, L0439: 3, L0740: 3, L0749: 3, L0777: 3, L0755: 3, S0376: 2, H0250: 2, H0046: 2, H0673: 2, H0038: 2, H0412: 2, H0494: 2, H0529: 2, L0770: 2, L0768: 2, L0766: 2, L0805: 2, S0152: 2, L0745: 2, L0750: 2, L0779: 2, L0757: 2, T0002: 1, H0583: 1, S0116: 1, H0341: 1, S0358: 1, S0444: 1, S0360: 1, H0580: 1,					93-132, 167-185, 93-112, 60-77, 148-164, 22-38
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1231	HKA EK20	897885	1241	958 - 353	2646	Pro-4 to Pro-9, Val-81 to Phe-87.	S0045: 1, S0476: 1, H0261: 1, H0642: 1, H0574: 1, H0485: 1, H0486: 1, T0040: 1, H0599: 1, H0581: 1, H0052: 1, H0251: 1, T0110: 1, H0150: 1, H0083: 1, H0266: 1, H0687: 1, S0214: 1, H0553: 1, H0372: 1, H0616: 1, H0100: 1, S0112: 1, S0438: 1, S0150: 1, H0641: 1, S0142: 1, L0764: 1, L0767: 1, L0775: 1, L0806: 1, L0653: 1, L0776: 1, L0791: 1, L0666: 1, L0665: 1, S0428: 1, L0438: 1, H0689: 1, H0435: 1, H0660: 1, H0648: 1, S0328: 1, S0330: 1, H0539: 1, H0522: 1, S0406: 1, S0027: 1, L0753: 1, L0731: 1, L0758: 1, S0434: 1, S0276: 1, S0196: 1 and H0423: 1. AR089: 6, AR055: 6, AR033: 5, AR053: 4, AR052: 4, AR096: 3, AR061: 3, AR039: 1, AR060: 1, AR104: 0 S0422: 19, S0126: 11, L0769: 10, L0750: 10, H0046: 9, H0124: 9, S0206:					95-120, 43-59
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1232	HDPVZ07	897891	1242	1207 - 287	2647	Ser-14 to Lys-21, Tyr-31 to Ser-39, Arg-121 to Gly-129, His-142 to Pro-153, Glu-155 to Ala-160, Arg-165 to Ala-170, Met-173 to Cys-180, Gln-187 to Ile-196, Ser-254 to Glu-264, Val-297 to Gly-302.	1, L0773: 1, L0522: 1, L0803: 1, L0650: 1, L0774: 1, L0375: 1, L0376: 1, L0523: 1, L0654: 1, L0655: 1, L0606: 1, L0657: 1, L0384: 1, L0788: 1, L0792: 1, L0532: 1, L0664: 1, S0374: 1, H0659: 1, H0660: 1, H0648: 1, H0539: 1, S0378: 1, S0380: 1, H0521: 1, H0696: 1, H0478: 1, H0732: 1, S0037: 1, L0756: 1, L0779: 1, L0755: 1, L0759: 1, H0445: 1, L0480: 1, H0136: 1, S0192: 1, S0242: 1, S0194: 1, S0196: 1 and H0543: 1.	5q23-q31	121050, 126150, 131400, 138040, 153455, 159000, 179095, 181460, 192974, 192974, 600807, 601596, 601692,	98-114	
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1233	HE8PB56	897898	1243	1893 - 1315	2648	Gln-37 to Gln-43, Cys-51 to Cys-65.	AR096: 3, AR061: 2, AR053: 1, AR089: 1, AR055: 1, AR033: 1, AR060: 1, AR052: 0, AR039: 0, AR104: 0 S0440: 28, S0476: 19, H0494: 19, S0372: 16, L0754: 16, S0132: 12, H0046: 12, L0666: 12, H0586: 11, S0330: 11, S0328: 10, S0360: 9, H0587: 9, L0747: 9, H0622: 8, S0436: 8, H0648: 7, S0356: 6, S0003: 6, H0674: 6, L0806: 5, L0362: 5, L0601: 5, S0358: 4, S0214: 4, H0039: 4, H0031: 4, H0264: 4, L0763: 4, L0662: 4, L0776: 4, L0777: 4, L0752: 4, S0430: 3, S0376: 3, H0370: 3, H0600: 3, H0592: 3, H0644: 3, H0551: 3, H0560: 3, L0637: 3, L0646: 3, L0649: 3, L0653:	601692, 601692, 601692, 602089, 602121, 602460	71-111, 10-33, 100-132, 151-176
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1236	HHEFI15	897968	1246	141 - 1040	2651	Pro-19 to Gly-27, Cys-52 to Gly-64, Lys-77 to Lys-85, Pro-104 to Leu-117, Glu-119 to Tyr-127, Glu-153 to Gly-162,	H0717: 1, S0402: 1, H0294: 1, S0114: 1, S0116: 1, H0341: 1, S0212: 1, H0483: 1, H0664: 1, H0662: 1, S0360: 1, S0046: 1, H0619: 1, H0411: 1, H0369: 1, S0222: 1, H0438: 1, H0486: 1, H0156: 1, H0318: 1, H0581: 1, H0046: 1, H0457: 1, H0564: 1, H0051: 1, H0201: 1, H0416: 1, H0688: 1, H0644: 1, L0456: 1, H0135: 1, H0616: 1, H0059: 1, H0561: 1, S0344: 1, L0763: 1, L0646: 1, L0521: 1, L0766: 1, L0649: 1, L0789: 1, L0663: 1, L0438: 1, H0435: 1, H0539: 1, S0406: 1, H0436: 1, L0612: 1, L0748: 1, L0751: 1, L0779: 1, L0731: 1, L0758: 1, L0759: 1, L0686: 1, S0436: 1, L0595: 1 and S0194: 1.				
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1237	HHEQF50	897970	1247	533 - 66	2652	<p>Ser-205 to Gly-216, Ser-223 to Gly-230.</p>	<p>L0748: 6, H0556: 3, S0007: 3, L0777: 3, H0265: 2, S0360: 2, H0592: 2, S0010: 2, H0041: 2, H0081: 2, L0794: 2, L0803: 2, L0666: 2, S0328: 2, L0596: 2, L0608: 2, H0224: 1, H0225: 1, S0040: 1, S0114: 1, T0049: 1, H0255: 1, H0411: 1, H0549: 1, S0222: 1, H0586: 1, H0618: 1, H0581: 1, H0052: 1, H0309: 1, L0471: 1, H0620: 1, H0373: 1, H0286: 1, T0006: 1, H0674: 1, H0135: 1, H0646: 1, L0770: 1, L0800: 1, L0764: 1, L0662: 1, L0363: 1, L0766: 1, L0804: 1, L0789: 1, L0663: 1, L0665: 1, H0547: 1, H0684: 1, S0028: 1, L0749: 1, L0756: 1, L0779: 1, H0542: 1 and S0424: 1.</p>				125-141, 22-38
						<p>Leu-52 to Ser-57, His-70 to Lys-77, Pro-100 to Lys-106, Lys-143 to Ala-148.</p>	<p>AR052: 2, AR053: 1, AR096: 1, AR055: 1, AR089: 1, AR061: 1, AR104: 1, AR060: 0, AR033: 0 H0542: 39, H0592: 8, H0543: 8, H0545: 7, S0422:</p>				

1238	HOSAY56	897979	1248	1058 - 348	2653	Lys-13 to Ser-18, Ala-28 to Pro-35.	5, H0521: 4, H0555: 4, H0544: 3, H0522: 3, H0586: 2, H0581: 2, H0510: 2, H0583: 1, H0580: 1, T0010: 1, H0553: 1, H0561: 1, H0529: 1 and H0684: 1. AR096: 5, AR052: 5, AR061: 4, AR089: 4, AR055: 3, AR060: 3, AR053: 3, AR033: 3, AR104: 3, AR039: 3 H0521: 9, H0522: 4, H0580: 2, S0214: 2, L0750: 2, H0486: 1, L0021: 1, H0251: 1, H0309: 1, H0263: 1, H0271: 1, S0003: 1, H0068: 1, H0090: 1, S0144: 1, L0803: 1, L0804: 1, L0749: 1, L0777: 1 and L0759: 1.				39-72	
1239	HOGEA82	898097	1249	1428 - 340	2654		AR039: 8, AR033: 8, AR089: 6, AR053: 6, AR055: 6, AR060: 5, AR052: 5, AR096: 4, AR061: 3, AR104: 2 T0008: 1, H0052: 1, H0435: 1, H0672: 1 and H0696: 1.				59-75, 163-179	
1240	HHFJV91	898152	1250	1250 -	2655	Val-6 to Phe-30,	AR089: 11, AR096: 8,				120-142	

					1693	Leu-33 to Pro-42, Leu-75 to Glu-80, His-99 to Ala-104.	AR060: 8, AR053: 8, AR052: 7, AR055: 7, AR033: 6, AR039: 4, AR104: 4, AR061: 4 H0222: 1, H0341: 1, H0662: 1, H0619: 1, H0370: 1, S0003: 1, H0673: 1, H0591: 1, H0529: 1, L0771: 1, H0543: 1 and H0423: 1.			
1241	HMACM2 9	898193	1251	981 - 292	2656	Pro-37 to Cys-51, Gln-53 to Cys-60, Asn-99 to Gly-106, Gly-145 to Glu-151, Gly-200 to Tyr-219.	AR033: 216, AR061: 216, AR104: 181, AR060: 158, AR096: 139, AR055: 122, AR089: 122, AR039: 78, AR052: 57, AR053: 50 S0278: 12, S0144: 12, S0142: 9, H0521: 8, H0638: 5, S0344: 5, L0731: 5, L0755: 3, L0756: 2, H0575: 1, H0009: 1, H0375: 1, H0606: 1, S0438: 1, S0440: 1, S0002: 1, L0763: 1, L0769: 1, L0637: 1, L0806: 1, L0658: 1, L0666: 1, L0355: 1, S0332: 1, H0522: 1, S0028: 1, S0031: 1, S0436: 1 and L0599: 1.	166-197, 2-18		
1242	HDPLG70	898235	1252	918 - 199	2657	Pro-51 to Asp-56, Gly-95 to Thr-105, Val-132 to Ala-138,	AR039: 106, AR053: 103, AR096: 100, AR052: 69, AR055: 34, AR089: 22,	196-228, 11-42		

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1243	HABAD39	898401	1253	36 - 848	2658		1, H0263: 1, L0738: 1, H0530: 1, H0046: 1, H0571: 1, H0081: 1, H0578: 1, H0083: 1, H0266: 1, H0615: 1, H0039: 1, H0604: 1, H0031: 1, H0181: 1, H0068: 1, S0036: 1, H0616: 1, H0087: 1, T0004: 1, H0494: 1, S0438: 1, H0529: 1, L0763: 1, L0796: 1, L0761: 1, L0645: 1, L0773: 1, L0364: 1, L0561: 1, L0651: 1, L0653: 1, L0654: 1, L0655: 1, L0629: 1, L0657: 1, L0658: 1, H0725: 1, H0519: 1, H0682: 1, H0684: 1, H0670: 1, S0380: 1, H0518: 1, S0044: 1, S0406: 1, H0555: 1, H0436: 1, S3014: 1, L0749: 1, L0731: 1, L0759: 1, S0260: 1, H0445: 1, H0423: 1 and H0506: 1. AR033: 5, AR053: 4, AR089: 4, AR052: 4, AR060: 3, AR039: 3, AR061: 3, AR055: 3, AR096: 2, AR104: 2 L0731: 12, L0748: 8, L0751: 6, L0769: 4, L0438:					31-58, 65- 81
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1244	HKAKC86	898524	1254	211 - 798	2659	Pro-11 to Leu-36.			AR039: 7, AR052: 5, AR033: 4, AR089: 4, AR096: 4, AR053: 3, AR104: 3, AR060: 3, AR061: 2, AR055: 2, H0494: 4, H0486: 3, L0809: 2, L0747: 2, H0264: 1, L0550: 1 and L0758: 1.				37-69, 82-98, 156-173, 118-134
1245	HUKEP18	898588	1255	111 - 509	2660	Pro-3 to Glu-10, Asn-17 to Thr-29, Ala-80 to Glu-86, Ser-96 to Ile-101.			AR055: 10, AR061: 8, AR052: 8, AR060: 7, AR033: 5, AR089: 5, AR053: 5, AR104: 4, AR096: 4, AR039: 3, L0758: 2, H0618: 1, H0059: 1, L0789: 1, L0665: 1, L0749: 1 and L0779: 1.				116-133, 61-77
1246	HL2AE66	898739	1256	192 - 1112	2661	Ala-19 to Gln-29.			AR039: 36, AR053: 22, AR033: 18, AR052: 17, AR096: 17, AR104: 16, AR055: 16, AR089: 15, AR061: 11, AR060: 11, H0553: 3, H0556: 2, H0580: 2, L0032: 2, L0743: 2, H0265: 1, S0114: 1,	12p			278-294, 2-18, 199-215

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1249	HSUMA53	898943	1259	94 - 912	2664	Lys-96 to Ser-105, Lys-157 to Ala-162, Leu-170 to Glu-175, Ser-222 to Asn-228, Glu-251 to Arg-262.	H0627: 1, L0743: 1, L0748: 1, L0740: 1, L0758: 1, S0436: 1, L0592: 1, S0011: 1, H0653: 1, S0242: 1 and H0721: 1. AR104: 115, AR061: 99, AR033: 69, AR055: 67, AR060: 65, AR096: 57, AR089: 53, AR053: 45, AR052: 38, AR039: 35 H0040: 4, L0794: 4, L0748: 3, S0002: 2, L0770: 2, L0789: 2, H0521: 2, H0341: 1, H0393: 1, H0586: 1, T0040: 1, H0013: 1, H0266: 1, H0560: 1, H0641: 1, L0372: 1, L0764: 1, L0790: 1, H0539: 1, L0740: 1, S0436: 1 and H0136: 1. AR096: 13, AR055: 11, AR060: 6, AR052: 5, AR033: 5, AR061: 5, AR053: 5, AR039: 3, AR089: 3, AR104: 3 L0748: 19, L0749: 10, L0754: 9, L0747: 6, H0031: 5, L0731: 5, H0553: 4, S0438: 3, H0624: 2, H0171: 2, H0619: 2, H0393: 2,	16-41, 119-145, 47-64, 77- 94, 104- 120
1250	HHFNI70	899099	1260	135 - 1100	2665		229-259, 3-20, 28- 44	

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1253	HOGEN56	899358	1263	659 - 3	2668	Asp-54 to Gly-59, Val-66 to Trp-75, Asp-141 to Glu-149, Ala-166 to Glu-178, Trp-202 to Pro-211, Ile-311 to Phe-319, Gly-331 to Leu-338.	AR052: 13, AR033: 12, AR089: 9, AR055: 8, AR096: 8, AR060: 6, AR104: 5, AR061: 3, H0251: 3, H0547: 3, H0521: 3, H0266: 2, H0040: 2, S0116: 1, H0580: 1, H0486: 1, H0575: 1, H0318: 1, H0084: 1, H0212: 1, H0059: 1, H0142: 1, S0002: 1, L0662: 1, L0766: 1, L0665: 1, H0519: 1, H0672: 1, S0027: 1, L0743: 1, L0754: 1, L0780: 1, L0591: 1, S0026: 1 and H0665: 1.				213-229
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1254	HWLOU33	899644	1264	527 - 1081	2669	Pro-6 to Gly-25, His-31 to His-38, Ile-94 to Glu-99, Lys-107 to Thr-115, Lys-175 to Ser-181.	AR096: 3, AR052: 2, AR089: 2, AR060: 2, AR061: 1, AR033: 1, AR053: 1, AR055: 1, AR039: 0, AR104: 0 S0444: 5, S0360: 4, S0408: 3, H0625: 3, H0436: 3, S0358: 2, H0641: 2, L0803:				137-166

1255	HPMKP09	899668	1265	2 - 697	2670	Asp-51 to His-59, Leu-79 to Asp-87, Phe-105 to Met-110, Phe-112 to Asp-123, Gly-136 to Asn-142, Lys-160 to Asp-166, Tyr-193 to Arg-200, Pro-209 to Asp-216.	2, S0374: 2, H0656: 1, H0662: 1, S0420: 1, S0442: 1, S0354: 1, S0376: 1, H0392: 1, H0427: 1, H0457: 1, H0538: 1, H0547: 1, H0660: 1, H0648: 1, H0672: 1, S0378: 1, S0192: 1, H0423: 1 and H0422: 1. AR055: 20, AR061: 12, AR060: 12, AR033: 11, AR104: 11, AR052: 9, AR053: 6, AR089: 6, AR039: 4, AR096: 3 H0156: 55, S0045: 25, L0662: 13, L0754: 12, H0051: 10, H0547: 10, L0439: 10, S0046: 8, L0105: 7, H0623: 7, H0412: 6, H0056: 6, L0755: 6, L0758: 6, H0624: 5, L0740: 5, L0471: 4, L0803: 4, S0328: 4, L0752: 4, L0588: 4, H0171: 3, S0360: 3, L0717: 3, H0545: 3, H0038: 3, H0268: 3, H0413: 3, L0794: 3, L0775: 3, L0647: 3, L0666: 3, L0664: 3, S0146: 3, S0406: 3, L0777: 3, S0260: 3, S0282: 2, H0619: 2, H0575: 2, T0082:					165-193, 1-24
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1256	HDPKJ19	899677	1266	147 - 563	2671				1, L0589: 1, L0593: 1, L0603: 1, H0667: 1, H0543: 1 and H0506: 1. AR039: 5, AR052: 5, AR089: 3, AR060: 3, AR053: 3, AR096: 2, AR104: 2, AR061: 2, AR055: 1, AR033: 1 S0408: 7, S0442: 4, S0360: 4, L0646: 4, H0675: 3, L0764: 3, L0803: 3, S0444: 2, H0574: 2, S0440: 2, L0761: 2, L0662: 2, L0805: 2, L0791: 2, S0374: 2, H0521: 2, L0752: 2, S0436: 2, L0596: 2, H0686: 1, S0354: 1, S0358: 1, S0376: 1, H0147: 1, H0046: 1, H0014: 1, H0494: 1, L0065: 1, L0772: 1, L0642: 1, L0776: 1, L0809: 1, L0529: 1, L0790: 1, H0689: 1, H0648: 1, S0406: 1 and L0755: 1.			46-62, 6- 22
1257	HOEJZ65	900050	1267	164 - 535	2672	Lys-13 to Gly-23, Cys-38 to Asp-43, Gly-48 to Trp-53.	13q14.3	277900, 600631	51-75			

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1259	HBXBC08	900230	1269	1728 -	2674	Arg-53 to Lys-61,	L0749: 2, H0265: 1, H0716: 1, S0134: 1, S0029: 1, S0418: 1, L0005: 1, S0354: 1, S0358: 1, S0360: 1, H0722: 1, S0132: 1, H0411: 1, H0486: 1, L0017: 1, T0082: 1, H0581: 1, H0085: 1, H0596: 1, H0546: 1, H0046: 1, H0457: 1, H0150: 1, H0009: 1, L0157: 1, H0563: 1, H0123: 1, H0620: 1, H0024: 1, H0373: 1, H0188: 1, H0687: 1, S0250: 1, H0039: 1, L0483: 1, H0553: 1, H0628: 1, H0169: 1, H0124: 1, H0068: 1, H0616: 1, H0087: 1, S0440: 1, S0144: 1, S0344: 1, L0764: 1, L0363: 1, L0766: 1, L0803: 1, L0378: 1, L0806: 1, L0776: 1, L0659: 1, L0809: 1, L0664: 1, L0665: 1, S0216: 1, H0547: 1, H0690: 1, H0521: 1, H0478: 1, L0741: 1, L0744: 1, L0754: 1, L0750: 1, L0779: 1, L0755: 1, L0758: 1, H0445: 1, L0597: 1, S0276: 1 and H0352: 1, AR052: 8, AR060: 7,				62-79,
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1260	HBXCF11	900775	1270	63 - 1421	2675	<p>Pro-30 to Thr-36, Lys-185 to Cys-193, Ala-224 to Asn-229, Ile-252 to Gly-260, Thr-280 to Asn-288, Ser-301 to Gln-308, Ser-332 to Asn-342, Gly-357 to Ser-364, Asp-376 to Val-382, Glu-411 to Gln-419.</p>	<p>H0008: 1, AR055: 2, AR033: 2, AR096: 2, AR060: 1, AR061: 1, AR052: 1, AR039: 1, AR089: 1, AR053: 0, AR104: 0 H0551: 5, H0521: 4, S0007: 3, H0090: 3, S0038: 3, L0519: 3, S0126: 3, S0027: 3, L0439: 3, S0212: 2, S0282: 2, H0550: 2, H0492: 2, H0373: 2, H0553: 2, S0036: 2, L0565: 2, H0522: 2, L0599: 2, L0366: 2, H0542: 2, S6024: 1, S0116: 1, H0305: 1, H0580: 1, S0278: 1, H0437: 1, S6014: 1, H0013: 1, H0575: 1, S0010: 1, S0665: 1, S0346: 1, S0474: 1, H0581: 1, H0052: 1, L0471: 1, H0014: 1, H0051: 1, S0003: 1, H0644: 1, L0142: 1, S0364: 1, H0591: 1, H0488: 1, H0494: 1, H0560: 1, S0150: 1, H0529: 1, L0662: 1, L0794: 1, L0804: 1, L0789: 1, S0374: 1, L0438: 1, H0520: 1, H0547: 1, H0519: 1, H0593: 1, L0602:</p>			<p>34-62, 88- 112, 147- 177, 311- 335, 122- 148, 195- 223, 428- 448, 229- 249, 385- 404, 1-17</p>
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1261	HKIXQ06	900956	1271	57 - 566	2676			1, H0518: 1, S0152: 1, L0612: 1, S0390: 1, S0028: 1, S0032: 1, L0759: 1, S0260: 1, S0308: 1, L0589: 1, L0595: 1, H0653: 1, H0667: 1 and S0194: 1. AR052: 9, AR039: 8, AR033: 8, AR104: 8, AR053: 8, AR060: 8, AR055: 8, AR089: 7, AR096: 7, AR061: 7 L0766: 7, H0441: 3, L0748: 3, H0327: 2, L0787: 2, L0749: 2, L0780: 2, L0785: 1, S0360: 1, H0728: 1, H0599: 1, S0010: 1, H0375: 1, H0674: 1, L0770: 1, L0769: 1, L0761: 1, L0794: 1, L0788: 1, S0052: 1, H0658: 1, L0750: 1, L0731: 1, L0759: 1 and S0196: 1. AR089: 2, AR096: 1, AR060: 1, AR104: 1, AR039: 1, AR061: 1, AR055: 1, AR033: 0, AR052: 0, AR053: 0 S0358: 2, L0769: 2, L0646: 2, L0764: 2, S0404:		141-165, 113-129
1262	HUFDB55	900993	1272	30 - 1619	2677			AR089: 2, AR096: 1, AR060: 1, AR104: 1, AR039: 1, AR061: 1, AR055: 1, AR033: 0, AR052: 0, AR053: 0 S0358: 2, L0769: 2, L0646: 2, L0764: 2, S0404:		425-458

1263	HFKLY39	901208	1273	172 - 783	2678	Asn-100 to Gly-105, Asn-114 to Leu-126, Ser-133 to Thr-139, Lys-146 to Cys-151, Tyr-188 to Pro-200.	2, S0406: 2, S0408: 1, H0085: 1, H0204: 1, H0597: 1, L0794: 1, L0776: 1, L0518: 1, L0789: 1 and L0596: 1. AR033: 19, AR104: 16, AR096: 9, AR089: 8, AR052: 8, AR039: 8, AR053: 7, AR055: 6, AR060: 4, AR061: 3 L0439: 19, L0776: 6, L0438: 5, S0360: 3, S0408: 3, H0620: 3, S0214: 3, L0649: 3, L0805: 3, L0663: 3, L0665: 3, L0777: 3, H0656: 2, S0376: 2, H0046: 2, S0003: 2, L0770: 2, L0771: 2, L0773: 2, L0803: 2, L0666: 2, S0406: 2, H0478: 2, L0755: 2, L0759: 2, S0116: 1, H0341: 1, H0662: 1, S0356: 1, S0045: 1, H0619: 1, H0393: 1, H0586: 1, H0331: 1, H0486: 1, H0013: 1, H0156: 1, L0022: 1, H0575: 1, S0010: 1, S0346: 1, H0505: 1, H0421: 1, H0052: 1, H0263: 1, H0596: 1, T0110: 1, H0457: 1, L0471: 1, H0375:				32-70, 67- 99, 10-42, 167-183
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1264	HUFAY01	901287	1274	32 - 1660	2679	Ser-4 to Arg-11, Ser-13 to Gly-18, Val-88 to Asp-103, Pro-105 to Ser-110, Arg-129 to Lys-135, Pro-151 to Gly-168, Ala-172 to Ser-177, Pro-185 to Lys-190, Asn-200 to Phe-205, Gln-214 to Tyr-220, Arg-245 to Asp-250,	1, T0006: 1, H0644: 1, H0673: 1, L0456: 1, S0036: 1, H0040: 1, H0100: 1, S0440: 1, H0641: 1, H0646: 1, S0142: 1, S0422: 1, L0372: 1, L0646: 1, L0800: 1, L0764: 1, L0521: 1, L0363: 1, L0768: 1, L0364: 1, L0794: 1, L0655: 1, L0659: 1, L0809: 1, L0529: 1, L0789: 1, S0374: 1, L0352: 1, H0658: 1, S0330: 1, S0380: 1, S0028: 1, L0743: 1, L0748: 1, L0754: 1, L0749: 1, L0750: 1, L0779: 1, S0434: 1, L0596: 1, L0592: 1, L0594: 1, S0106: 1, H0542: 1 and H0506: 1.				394-423, 446-470, 262-283, 338-356, 366-385, 291-307, 475-491, 20-36
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1266	HETHC61	901421	1276	82 - 819	2681	Arg-24 to Leu-33, Lys-42 to Arg-48, Asp-65 to Thr-70, Glu-111 to Leu-119, Gln-129 to Ser-138, Ser-153 to Trp-158, Pro-163 to Asp-175.	L0659: 1, L0382: 1, L0666: 1, L0665: 1, H0702: 1, L0565: 1, H0520: 1, H0658: 1, H0670: 1, H0672: 1, S0328: 1, H0518: 1, H0521: 1, S0406: 1, H0732: 1, S0390: 1, S0037: 1, S0027: 1, L0749: 1, L0750: 1, L0779: 1, L0780: 1, L0752: 1, H0445: 1, H0707: 1 and S0446: 1.				220-246, 1-22
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1273	HFXLK46	902129	1283	175 - 846	2688	Arg-23 to Ile-31, Ala-112 to Trp-119.	AR096: 2, AR055: 1, AR089: 1, AR060: 1, AR061: 1, AR033: 0, AR039: 0, AR052: 0, AR053: 0, AR104: 0 S0028: 6, S0260: 4, S0282: 3, L0005: 2, L0476: 2, S0278: 2, H0318: 2, S0144: 2, H0542: 2, H0624: 1, H0171: 1, S0134: 1, S0180: 1, S0354: 1, S0045: 1, S0049: 1, H0416: 1, H0617: 1, S0036: 1, H0164: 1, S0150: 1, S0428: 1, S0216: 1, S0044: 1, S0146: 1 and S0031: 1.				41-69, 1- 21, 62-79, 149-165, 82-98
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1277	HWCAD85	902684	1287	250 - 1182	2692	Pro-6 to Gly-25, Lys-37 to Ala-55, Phe-107 to Phe-117, Ser-133 to Pro-139, Ile-149 to Cys-156, Gln-169 to Ile-176,	AR039: 34, AR052: 21, AR104: 20, AR096: 17, AR053: 17, AR033: 15, AR089: 15, AR060: 12, AR055: 10, AR061: 9 S0364: 1, H0529: 1, L0764: 1, L0806: 1, L0657: 1, L0809: 1, H0690: 1 and S0152: 1.				222-241, 122-147, 24-42, 66- 85, 202- 218, 149- 165
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1285	HTLDD85	904049	1295	125 - 868	2700	Gly-8 to Trp-73, Leu-75 to Lys-80, Arg-169 to Met-174, Phe-203 to Lys-210, Pro-216 to Lys-248.			AR055: 17, AR039: 11, AR053: 9, AR060: 9, AR052: 9, AR033: 8, AR089: 7, AR061: 7, AR096: 6, AR104: 4 H0616: 14, H0038: 12, H0618: 6, H0253: 5, L0758: 5, L0768: 4, H0411: 2, L0779: 2, L0151: 1, L0697: 1 and S0398: 1.				173-198, 148-170, 91-113, 112-133
1286	HDTIZ68	904058	1296	167 - 1021	2701	Met-1 to Arg-11, Leu-16 to Lys-23, Pro-32 to Gly-45, Pro-118 to Ala-134,			AR096: 6, AR052: 3, AR053: 3, AR033: 2, AR089: 2, AR060: 2, AR055: 2, AR104: 1,	13q32-34	153900, 156600, 180381, 227500,	43-71, 216-232	



1287	HDAAV92	904116	1297	92 - 727	2702	Gly-137 to Val-142, Ser-153 to Ser-162, Leu-178 to Asn-183, Met-236 to Tyr-246.	AR061: 1, AR039: 0 H0423: 6, H0638: 3, H0560: 3, H0529: 3, H0521: 3, H0445: 3, L0362: 3, S0356: 2, S0358: 2, H0486: 2, H0581: 2, L0695: 2, H0412: 2, L0770: 2, L5568: 2, S0328: 2, L0748: 2, L0756: 2, L0777: 2, H0422: 2, H0624: 1, S0116: 1, H0341: 1, H0402: 1, H0125: 1, S0360: 1, H0574: 1, L0105: 1, H0318: 1, S0474: 1, H0421: 1, L0041: 1, H0179: 1, H0688: 1, H0622: 1, H0038: 1, H0488: 1, H0641: 1, S0142: 1, S0344: 1, L0369: 1, L0794: 1, L0766: 1, L0804: 1, L0784: 1, L0776: 1, L0663: 1, S0428: 1, H0435: 1, H0522: 1, H0134: 1, S0028: 1, L0740: 1, L0751: 1, L0754: 1, L0749: 1, L0750: 1, L0731: 1, L0757: 1, H0343: 1, S0196: 1 and H0542: 1.	227600, 232000, 238970, 256731, 602085			66-90, 46- 67
						His-13 to His-34, Lys-113 to Leu-122, Gly-151 to Trp-161.	AR039: 9, AR052: 5, AR053: 4, AR096: 3, AR089: 2, AR061: 2, AR055: 2, AR060: 2,				

AR033: 2, AR104: 1 H0046: 17, S0358: 9, L0748: 9, H0590: 8, L0766: 7, H0574: 6, L0764: 6, L0659: 6, L0663: 6, L0749: 5, S0442: 4, L0755: 4, L0601: 4, S0360: 3, H0036: 3, L0761: 3, L0794: 3, H0657: 2, S0444: 2, S0408: 2, H0263: 2, H0510: 2, H0622: 2, H0560: 2, S0002: 2, H0529: 2, L0372: 2, L0800: 2, L0649: 2, L0803: 2, L0791: 2, L0666: 2, S0374: 2, H0690: 2, L0777: 2, L0596: 2, H0423: 2, H0556: 1, H0713: 1, H0583: 1, H0650: 1, S0354: 1, S0376: 1, H0580: 1, H0619: 1, H0497: 1, H0632: 1, H0069: 1, L0022: 1, H0575: 1, H0014: 1, H0266: 1, H0271: 1, H0416: 1, S0003: 1, H0111: 1, H0038: 1, H0616: 1, H0625: 1, H0561: 1, S0440: 1, H0646: 1, S0426: 1, L0770: 1, L0769: 1, L0667: 1, L0772: 1, L0373: 1, L0645: 1, L0768: 1, L0533: 1, L0804: 1,
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1288	HDPGH33	904204	1298	257 - 1186	2703	Ser-44 to Ser-64, Glu-84 to Ile-90, Pro-93 to Gly-108, Leu-122 to Thr-129, Ser-183 to Gly-188, Thr-191 to Ser-208, Pro-214 to Thr-223, Arg-283 to Gly-288, Asp-293 to Ser-310.	L0775: 1, L0527: 1, L0783: 1, L0809: 1, L0664: 1, L0438: 1, H0660: 1, H0521: 1, S0404: 1, S0406: 1, L0751: 1, L0747: 1, L0750: 1, L0756: 1, L0780: 1, H0707: 1, S0011: 1 and H0422: 1.				252-283, 4-20
							AR052: 3, AR096: 1, AR055: 1, AR039: 1, AR089: 1, AR060: 0, AR061: 0, AR104: 0, AR053: 0, AR033: 0 S0410: 5, S0358: 4, L0759: 4, S0444: 3, H0599: 3, L0803: 3, L0774: 3, H0521: 3, H0638: 2, S0354: 2, S0408: 2, H0580: 2, H0674: 2, L0761: 2, L0764: 2, L0659: 2, L0809: 2, L0789: 2, L0438: 2, H0522: 2, S0434: 2, H0717: 1, S0376: 1, H0586: 1, H0485: 1, H0013: 1, S0003: 1, H0039: 1, T0006: 1, S0386: 1, H0560: 1, S0440: 1, L0800: 1, L0662: 1, L0783: 1, L0790: 1, S0330: 1, H0696: 1, L0779: 1, L0777: 1, L0755: 1, L0758: 1 and				

1289	HHEPR52	904360	1299	146 - 568	2704	Glu-19 to Glu-25, Pro-35 to Ser-40, Asn-45 to Asn-54, Arg-79 to Thr-86, Pro-119 to Glu-130.	H0653: 1. AR033: 3, AR061: 3, AR055: 2, AR052: 2, AR089: 2, AR053: 2, AR060: 2, AR104: 2, AR096: 2, AR039: 2 L0777: 10, L0758: 9, S0436: 8, L0438: 7, L0748: 7, L0666: 6, H0520: 6, L0439: 6, S0358: 5, L0659: 5, L0809: 5, H0547: 5, L0740: 5, L0747: 5, L0750: 5, H0046: 4, H0135: 4, L0771: 4, L0665: 4, H0660: 4, H0539: 4, L0751: 4, L0749: 4, L0759: 4, H0545: 3, H0009: 3, H0050: 3, H0012: 3, H0620: 3, H0266: 3, L0769: 3, L0764: 3, L0766: 3, L0657: 3, L0663: 3, L0752: 3, H0624: 2, H0341: 2, H0661: 2, S0420: 2, S0360: 2, S0408: 2, H0586: 2, S0005: 2, H0052: 2, L0471: 2, H0024: 2, H0188: 2, H0286: 2, H0182: 2, H0040: 2, H0087: 2, H0551: 2, H0059: 2, H0100: 2, H0494: 2, S0440: 2, L0369: 2, L0773: 2, L0648:				83-116, 1- 19
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[illegible]

1290	HSYDY88	904381	1300	161 - 1861	2705	Ser-16 to Ala-29, Asp-49 to Ser-54, Pro-78 to Ala-86, Arg-113 to Gly-120, Gly-170 to Pro-194, Ala-220 to Ser-227, Asp-256 to Pro-261, Glu-300 to Glu-305, Gly-322 to Pro-328, Tyr-389 to Glu-399, Gln-423 to Glu-431,	1, L0770: 1, L0796: 1, L3904: 1, L5565: 1, L3905: 1, L0761: 1, L0772: 1, L0645: 1, L0662: 1, L0363: 1, L0768: 1, L0794: 1, L0804: 1, L0806: 1, L0805: 1, L0653: 1, L0493: 1, L0517: 1, L0782: 1, L0783: 1, L0647: 1, L0789: 1, L0790: 1, H0593: 1, H0689: 1, H0690: 1, S0330: 1, S0044: 1, H0694: 1, H0555: 1, H0626: 1, L0756: 1, L0753: 1, L0755: 1, H0445: 1, S0434: 1, L0592: 1, L0608: 1, L0593: 1, S0196: 1, H0543: 1, H0422: 1, S0424: 1, S0456: 1, H0506: 1 and H0008: 1.				325-345
						AR061: 4, AR089: 3, AR033: 3, AR104: 2, AR053: 2, AR096: 1, AR060: 1, AR052: 0, AR039: 0, AR055: 0 H0124: 28, H0013: 8, H0547: 4, H0144: 3, L0595: 3, H0390: 2, S0346: 2, H0012: 2, L0565: 2, L0777: 2, S0001: 1, S0282: 1, S0442: 1, H0619: 1, S0222:					

1291	HHFCW31	904399	1301	395 - 1516	2706	Asp-488 to Gly-494, Arg-507 to Ile-512, Ser-515 to Arg-521, Ser-548 to Asn-554.	1, H0333: 1, T0039: 1, S0010: 1, S0049: 1, H0052: 1, H0546: 1, H0178: 1, H0566: 1, H0081: 1, H0024: 1, S0388: 1, S0051: 1, H0292: 1, H0135: 1, H0591: 1, H0087: 1, H0551: 1, S0038: 1, H0100: 1, L0770: 1, L0521: 1, L0651: 1, L0543: 1, L0664: 1, H0520: 1, S3012: 1, S0028: 1, L0439: 1, L0759: 1, H0445: 1, L0592: 1, L0599: 1 and H0352: 1.				
1292	HEOPR46	904471	1302	215 -	2707	Ser-6 to Ser-12, Cys-56 to Asp-65, Asn-72 to Glu-79, Lys-94 to Tyr-99, Asn-106 to Tyr-115, Glu-149 to Thr-161, Cys-186 to Phe-191, Ser-197 to Asp-203, Cys-213 to Lys-218, Arg-226 to His-241, Glu-249 to Arg-259, Cys-265 to Phe-272, Pro-287 to Tyr-305, Arg-343 to Ser-370.	AR055: 2, AR060: 1, AR089: 1, AR096: 0, AR033: 0, AR053: 0, AR061: 0, AR039: 0, AR052: 0, AR104: 0 H0674: 3, L0439: 3, L0435: 2, L0540: 2, L0438: 2, L0756: 2, L0759: 2, H0170: 1, H0599: 1, H0178: 1, H0572: 1, H0050: 1, S6028: 1, H0673: 1, L0809: 1, L0666: 1, H0519: 1, S0126: 1, H0696: 1, H0694: 1, L0742: 1 and L0777: 1.				316-346, 12-40, 306-322
						Arg-40 to Asp-46,	AR052: 37, AR096: 34,				69-94, 21-

				598		Gln-106 to Ala-114.	AR053: 21, AR089: 17, AR033: 15, AR104: 14, AR039: 11, AR060: 10, AR061: 2, AR055: 1 H0457: 4, L0766: 3, L0771: 2, L0789: 2, H0556: 1, H0656: 1, H0486: 1, H0009: 1, L0646: 1, L0768: 1, L0794: 1, L0655: 1, L0809: 1, H0701: 1, L0747: 1, L0758: 1, H0707: 1 and H0542: 1.				37, 88- 104, 49- 65, 1-17
1293	HDPIF47	904473	1303	63 - 1457	2708	Met-1 to Ala-8, Gly-15 to Gly-22.	AR096: 5, AR052: 4, AR039: 3, AR053: 3, AR089: 3, AR033: 2, AR060: 2, AR055: 2, AR104: 2, AR061: 1 S0474: 19, L0766: 11, H0521: 10, L0803: 6, L0748: 6, L0717: 5, L0759: 5, S0003: 4, H0663: 3, H0156: 3, L0598: 3, L0771: 3, L0804: 3, H0522: 3, L0731: 3, S0436: 3, H0486: 2, S0426: 2, L0770: 2, L0659: 2, S0126: 2, S0406: 2, L0749: 2, L0755: 2, L0757: 2, L0758: 2, L0590: 2, S0026: 2, H0716: 1, H0341: 1, S0212: 1, L0481:				415-443, 257-290, 108-135, 41-60, 209-236, 354-377, 329-351, 394-414, 306-323, 92-109, 131-147



1294	HKAIP13	904639	1304	823 - 1938	2709	Arg-26 to Cys-32, Val-108 to Lys-132, Glu-193 to Tyr-198, Pro-232 to Asn-249	1, S0444: 1, S0360: 1, H0637: 1, H0580: 1, H0734: 1, H0619: 1, H0586: 1, H0574: 1, H0427: 1, L0021: 1, H0575: 1, H0318: 1, H0545: 1, H0024: 1, H0373: 1, H0071: 1, H0179: 1, S0214: 1, H0428: 1, H0674: 1, H0591: 1, H0616: 1, H0488: 1, H0494: 1, S0438: 1, S0440: 1, H0647: 1, S0142: 1, UNKWN: 1, L0369: 1, L0763: 1, L0769: 1, L0646: 1, L0648: 1, L0662: 1, L0650: 1, L0775: 1, L0805: 1, L0653: 1, L0776: 1, L0656: 1, L0782: 1, L0809: 1, L0519: 1, S0052: 1, H0144: 1, H0520: 1, H0547: 1, H0660: 1, S0380: 1, L0742: 1, L0439: 1, L0750: 1, L0777: 1, S0031: 1, H0445: 1, S0434: 1, H0665: 1, H0667: 1, S0194: 1, S0276: 1 and S0458: 1.				247-276	

1295	HLWEP76	904673	1305	151 - 1740	2710	Asn-285 to Asp-297, Ala-301 to Ser-308, Tyr-346 to Gly-363, Pro-365 to Ser-372.	AR061: 2, AR055: 2 L0747: 4, L0749: 4, L0748: 3, L0777: 3, S0356: 2, L0803: 2, H0547: 2, H0574: 1, H0510: 1, H0059: 1, H0494: 1, H0520: 1, H0672: 1, L0752: 1, L0595: 1 and S0026: 1.				238-266, 465-494, 357-378, 378-405, 114-136, 293-310, 329-347, 57-73, 146-162, 425-441, 188-204, 79-95
						Ser-23 to Gln-40, Pro-140 to Tyr-145, Glu-175 to Ala-182, Thr-229 to Lys-240, Arg-265 to Glu-277, Gly-454 to Cys-460, Ile-494 to Lys-504, Gly-517 to Thr-524.	AR096: 4, AR033: 3, AR039: 2, AR061: 2, AR104: 2, AR052: 1, AR055: 1, AR060: 1, AR089: 0 H0553: 8, L0754: 8, L0603: 8, L0794: 6, L0758: 6, L0809: 5, S0358: 4, L0769: 4, H0030: 3, L0755: 3, H0265: 2, H0556: 2, S0278: 2, H0549: 2, L0789: 2, L0438: 2, L0750: 2, H0722: 1, S0132: 1, H0550: 1, H0586: 1, H0486: 1, H0635: 1, L0022: 1, H0318: 1, H0310: 1, H0052: 1, H0150: 1, H0009: 1, H0622: 1, H0031: 1, H0040: 1, H0494: 1, H0641: 1, H0647: 1, L0643: 1, L0764: 1, L0649: 1, L0804: 1, L0659: 1, L0793: 1, L0747: 1,				

1296	HTLIT05	904861	1306	153 - 1040	2711	Leu-24 to Thr-31, Lys-92 to Leu-99, Arg-111 to Trp-116, Arg-118 to Thr-128, Thr-162 to Asn-168, Thr-198 to Asp-204.	L0756: 1, S0260: 1, H0665: 1 and L0698: 1. AR089: 9, AR096: 7, AR060: 5, AR053: 5, AR039: 5, AR055: 4, AR052: 4, AR104: 3, AR061: 3, AR033: 3 H0618: 2, H0040: 1 and H0522: 1.				36-55, 261-281, 204-220
1297	HPTZB93	904877	1307	267 - 935	2712	Asn-24 to Gly-34, Ala-42 to His-57, Trp-68 to Tyr-76, Pro-88 to Gly-94, Phe-109 to Glu-122, Gln-152 to Asp-161, Leu-207 to Gly-215.	AR052: 49, AR096: 44, AR053: 39, AR089: 34, AR039: 30, AR061: 27, AR104: 23, AR055: 21, AR033: 20, AR060: 18 L0805: 50, L0776: 30, L0789: 8, L0750: 4, L0769: 3, L0809: 3, H0424: 2, L0794: 2, L0731: 2, H0231: 1, H0213: 1, H0418: 1, S0370: 1, L0768: 1, L0659: 1, L0788: 1, L0779: 1 and L0758: 1.				170-186, 6-22, 134- 150, 93- 109
1298	HWLAJ33	904911	1308	270 - 887	2713	Pro-22 to Gly-28, Gln-32 to Gln-38, Ser-105 to Phe-113, Cys-149 to Tyr-155, Ser-186 to His-193, Gln-196 to Trp-205.	AR053: 197, AR052: 188, AR096: 184, AR089: 119, AR104: 98, AR039: 83, AR060: 77, AR033: 73, AR061: 57, AR055: 49 L0748: 5, H0581: 4, H0393: 3, H0250: 2, S0374:				42-72, 87- 105, 125- 141

1299	HAGFD47	904977	1309	357 - 1154	2714	Thr-187 to Lys-192, Asn-255 to Leu-262.	2, S0354: 1, H0586: 1, H0013: 1, H0004: 1, H0421: 1, H0031: 1, H0644: 1, H0634: 1, S0144: 1, S0344: 1, L0766: 1, L0657: 1, L0659: 1, H0518: 1, S0044: 1, H0555: 1, L0752: 1 and L0755: 1. AR096: 15, AR053: 12, AR060: 8, AR052: 7, AR089: 7, AR039: 6, AR033: 5, AR055: 5, AR061: 4, AR104: 3 L0439: 6, L0748: 5, L0770: 4, L0771: 4, L0740: 4, H0341: 2, H0596: 2, H0373: 2, H0266: 2, L0766: 2, L0775: 2, L0659: 2, L0663: 2, L0665: 2, S0027: 2, L0601: 2, H0624: 1, H0717: 1, S0114: 1, L0415: 1, L0760: 1, S0116: 1, H0722: 1, H0733: 1, H0411: 1, H0497: 1, H0486: 1, H0427: 1, L0021: 1, S0010: 1, H0318: 1, H0581: 1, H0421: 1, H0744: 1, T0110: 1, H0597: 1, S0003: 1, H0068: 1, H0551: 1, S0440: 1, H0633: 1, S0422: 1,					92-112, 51-74, 153-179, 13-31, 121-137
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1300	HSKAS66	905017	1310	106 - 762	2715	Ser-4 to Arg-9, Phe-24 to Tyr-35, Ala-37 to Gly-42, Val-123 to Thr-129, Thr-162 to Ser-167.	S0002: 1, L0763: 1, L0772: 1, L0764: 1, L0773: 1, L0387: 1, L0650: 1, L0655: 1, L0783: 1, L0384: 1, L0529: 1, L0666: 1, H0691: 1, L0438: 1, H0547: 1, H0670: 1, L0754: 1, L0747: 1, L0755: 1, L0758: 1, S0031: 1, H0665: 1, S0276: 1 and H0543: 1.					141-162, 176-194
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1301	HOENT25	905050	1311	2158 - 3012	2716	Glu-8 to Glu-13, Ser-61 to Gly-71, His-118 to Gly-125, Gly-154 to Gln-160, Pro-171 to Arg-177, Arg-200 to Trp-207, Pro-214 to Val-224, Arg-240 to Ser-247.	H0546: 1, H0046: 1, H0086: 1, H0024: 1, H0604: 1, H0181: 1, H0272: 1, S0438: 1, H0647: 1, S0144: 1, L0639: 1, L0372: 1, L0800: 1, L0644: 1, L0766: 1, L0803: 1, L0382: 1, L0787: 1, L0788: 1, L0663: 1, S0374: 1, H0547: 1, H0593: 1, H0521: 1, H0522: 1, S3014: 1, S0027: 1, L0740: 1, L0751: 1, L0746: 1, L0749: 1, L0779: 1, L0757: 1 and S0436: 1. AR096: 2, AR052: 1, AR060: 1, AR033: 1, AR089: 0, AR061: 0, AR104: 0, AR039: 0, AR055: 0, AR053: 0 L0747: 15, L0758: 7, L0740: 5, L0779: 5, L0534: 3, S0442: 3, S0360: 3, L0769: 3, L0764: 3, L0775: 3, L0776: 3, S0126: 3, L0596: 3, H0663: 2, S0474: 2, H0457: 2, L0157: 2, H0620: 2, L0483: 2, L0803: 2, L0666: 2, L0438: 2, H0696: 2, L0749: 2, L0750: 2, L0756: 2, L0589: 2,					177-197, 126-142
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	L0366: 2, H0624: 1, S0030: 1, H0306: 1, H0402: 1, S0418: 1, S0358: 1, H0441: 1, H0392: 1, H0415: 1, H0333: 1, H0486: 1, H0013: 1, H0427: 1, H0156: 1, H0599: 1, H0318: 1, H0581: 1, H0421: 1, S0049: 1, H0196: 1, H0052: 1, L0040: 1, H0546: 1, L0471: 1, H0014: 1, H0051: 1, H0375: 1, S0003: 1, H0644: 1, L0142: 1, L0143: 1, H0673: 1, H0038: 1, H0040: 1, H0616: 1, S0306: 1, H0207: 1, S0002: 1, H0695: 1, L0638: 1, L0662: 1, L0387: 1, L0766: 1, L0774: 1, L0375: 1, L0807: 1, L0783: 1, L0793: 1, L0664: 1, H0723: 1, H0547: 1, H0689: 1, H0648: 1, H0672: 1, S0328: 1, H0539: 1, L0602: 1, S0152: 1, H0555: 1, H0436: 1, H0540: 1, S0027: 1, L0748: 1, L0754: 1, L0752: 1, L0755: 1, L0757: 1, L0759: 1, L0608: 1, L0362: 1, H0668: 1, H0665: 1, S0194: 1, H0423: 1 and
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1302	HWBDL33	905114	1312	545 - 1288	2717	Gln-23 to Lys-39, Glu-150 to Thr-158.	S0456: 1, AR096: 18, AR053: 11, AR089: 11, AR039: 11, AR060: 8, AR033: 7, AR104: 7, AR055: 5, AR052: 5, AR061: 4 L0748: 11, H0580: 7, H0575: 7, H0031: 5, H0581: 4, H0522: 4, L0731: 4, S0376: 3, H0529: 3, H0521: 3, S0354: 2, H0427: 2, H0590: 2, T0023: 2, H0090: 2, H0710: 2, H0555: 2, L0751: 2, L0759: 2, S0356: 1, S0444: 1, H0645: 1, H0392: 1, H0587: 1, H0497: 1, H0486: 1, H0250: 1, S0280: 1, H0042: 1, H0318: 1, H0014: 1, H0644: 1, H0068: 1, S0142: 1, L0794: 1, L0805: 1, L0776: 1, S0374: 1, S0380: 1, L0754: 1, L0758: 1, H0445: 1, H0595: 1, S0434: 1, L0362: 1, H0653: 1 and S0424: 1.	178-207, 43-72, 115-138, 87-104
1303	HAABQ61	905116	1313	100 - 1068	2718	Met-1 to Ser-12, Gln-18 to Cys-23, Glu-46 to His-52, Thr-262 to Lys-268.	AR053: 9, AR052: 8, AR096: 6, AR039: 6, AR055: 5, AR089: 5, AR060: 4, AR033: 3,	267-295, 211-238, 236-260, 123-144,



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1304	HFPFA83	905151	1314	202 - 642	2719	Thr-4 to Val-11.	AR033: 139, AR055: 136, AR061: 127, AR104: 104, AR060: 96, AR089: 56, AR039: 49, AR053: 43, AR096: 40, AR052: 20 H0620: 2, H0024: 2, H0208: 1, S0222: 1, H0194: 1, H0123: 1, H0051: 1 and S0052: 1.				88-120, 17-48, 63- 79

1305	HFIDN52	905157	1315	307 - 1332	2720	Thr-79 to Asn-84, Gly-118 to Arg-127, Lys-141 to Pro-147, Phe-234 to Gln-243, Gln-256 to Asn-270.	AR089: 15, AR104: 11, AR052: 10, AR033: 10, AR096: 8, AR053: 7, AR060: 7, AR055: 6, AR039: 6, AR061: 4 H0038: 12, H0616: 9, L0749: 8, L0758: 8, L0748: 7, H0046: 6, L0777: 6, H0341: 4, L0774: 4, L0809: 4, L0754: 4, L0747: 4, L0752: 4, L0757: 4, H0510: 3, S0438: 3, L0764: 3, L0666: 3, H0547: 3, S0152: 3, L0439: 3, S0436: 3, S0442: 2, H0619: 2, S0222: 2, H0575: 2, H0083: 2, H0644: 2, H0551: 2, S0142: 2, L0770: 2, L0775: 2, S0380: 2, L0759: 2, L0362: 2, H0542: 2, H0423: 2, H0624: 1, S0040: 1, H0716: 1, S0134: 1, S0116: 1, S0282: 1, H0663: 1, H0458: 1, H0638: 1, S0418: 1, S0358: 1, S0376: 1, S0360: 1, H0730: 1, H0728: 1, H0431: 1, H0403: 1, H0592: 1, H0331: 1, H0574: 1, H0250: 1, S0280: 1, S0010: 1, S0346: 1, H0581: 1,				190-217, 282-298
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1306	HAHSE23	905257	1316	48 - 749	2721	<p>Leu-24 to Gln-35, Arg-59 to Pro-64, Glu-71 to His-78, Asp-89 to Gly-94, Pro-141 to Val-151, Thr-167 to Val-172, Ala-175 to Thr-180</p>	<p>H0327: 1, H0546: 1, S0050: 1, H0355: 1, S0250: 1, S0003: 1, H0252: 1, H0428: 1, T0006: 1, H0617: 1, H0032: 1, H0169: 1, L0455: 1, S0366: 1, H0591: 1, H0268: 1, S0038: 1, T0041: 1, H0714: 1, S0440: 1, H0633: 1, S0144: 1, S0422: 1, H0529: 1, L0369: 1, L0769: 1, L0772: 1, L4500: 1, L0651: 1, L0606: 1, L0657: 1, L0659: 1, L0530: 1, L0791: 1, L0792: 1, L0793: 1, H0144: 1, S0374: 1, H0723: 1, H0519: 1, H0539: 1, H0710: 1, H0709: 1, H0522: 1, S0013: 1, S0206: 1, L0755: 1, L0592: 1, L0366: 1, H0665: 1, S0192: 1, S0242: 1, S0196: 1, H0543: 1 and S0462: 1. AR089: 2, AR096: 1, AR061: 1, AR060: 1, AR104: 0, AR033: 0, AR052: 0, AR055: 0, AR053: 0</p>				193-216, 216-234, 5-21
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1307	HWMFE21	905289	1317	150 - 2288	2722	Arg-48 to Asn-56, Gly-166 to Ser-175, Tyr-250 to Leu-261, Glu-329 to Gly-355, Ala-378 to Tyr-383, Gly-390 to Tyr-413, Pro-422 to Cys-433, Gln-491 to Tyr-496, Phe-511 to Ser-520, Pro-542 to Arg-551, Arg-568 to Val-582, Gly-595 to Glu-601, Gln-608 to Pro-614, Pro-669 to Pro-678.	AR033: 11, AR053: 11, AR089: 9, AR052: 8, AR055: 8, AR096: 7, AR039: 7, AR060: 5, AR061: 4, AR104: 3 H0556: 8, H0521: 8, H0550: 6, L0601: 6, S0358: 5, S0126: 5, S0040: 4, H0662: 4, H0622: 4, S0144: 4, S0027: 4, S0436: 4, H0620: 3, H0266: 3, H0124: 3, H0135: 3, H0551: 3, L0743: 3, L0754: 3, H0667: 3, H0265: 2, H0294: 2, S0134: 2, H0663: 2, S0442: 2, S0376: 2, H0619: 2, H0393: 2, H0370: 2, T0040: 2, H0250: 2, H0599: 2, H0575: 2, H0318: 2, H0597: 2, H0544: 2, H0545: 2, H0050: 2, H0179: 2, H0271: 2, H0428: 2, H0030: 2, H0641: 2, S0210: 2, L0646: 2, L0659: 2, L0666: 2, H0435: 2, H0670: 2, S0328: 2, H0539: 2, S0152: 2, H0555: 2, S3014: 2, S0028: 2, S0031: 2, H0445: 2, H0665: 2, S0192: 2, H0543: 2, H0717: 1, T0049: 1,			438-469, 1-17
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1308	HHBEA82	905311	1318	259 - 3081	2723	Gln-33 to Trp-49, Gly-161 to Gly-172, Ile-207 to Arg-212, Asn-414 to Val-419, Val-423 to Gln-428, Val-436 to Gly-441, Lys-467 to Leu-478, Phe-497 to Ser-508, Met-550 to Gly-560, Glu-688 to Thr-697, Ile-711 to Gly-720, Ala-747 to Gly-759, Leu-785 to Phe-791, Ser-795 to Gln-800, Thr-808 to Lys-813, Ser-821 to Phe-832, Thr-879 to Glu-889, Leu-898 to Gln-904, Gln-934 to Met-941.	AR033: 106, AR061: 86, AR096: 76, AR060: 76, AR039: 74, AR055: 70, AR089: 51, AR104: 43, AR052: 40, AR053: 34 H0521: 3, H0373: 1, H0268: 1, L0803: 1 and H0522: 1.			7-28, 132- 148, 759- 775, 235- 251
1309	HWHP10	905322	1319	172 - 1302	2724		AR096: 1, AR055: 1, AR089: 1, AR060: 1, AR104: 1, AR061: 0, AR039: 0, AR052: 0, AR033: 0 L0748: 5, H0556: 4, H0046: 3, L0766: 3, L0666: 3, L0754: 3, L0757: 3, H0083: 2, H0622: 2, H0623: 2, S0344: 2, L0783: 2, L0789: 2, L0665: 2, L0439:			69-111, 264-287, 5-22, 198- 214, 99- 115

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1311	HLICA89	905505	1321	121 - 456	2726	Asn-21 to Pro-26, Pro-35 to Arg-44.	1, S0308: 1, S0434: 1, L0605: 1 and H0506: 1, AR033: 4, AR061: 3, AR089: 3, AR060: 2, AR052: 1, AR104: 1, AR055: 0, AR053: 0, AR039: 0, AR096: 0			85-102	
1312	HTTDZ50	905792	1322	5 - 2083	2727	Gly-25 to His-31, Thr-54 to Thr-59, Pro-77 to Leu-82, Ser-94 to Asn-99, Ser-187 to Lys-205, Leu-222 to Arg-228, Pro-234 to Ile-249, Tyr-293 to Arg-302, Ser-319 to Asp-337, Thr-408 to Gln-418, Ser-560 to Asn-565, Ser-567 to Gln-588, Glu-643 to Asn-656.	AR096: 105, AR053: 42, AR052: 32, AR089: 16, AR055: 16, AR039: 14, AR061: 11, AR060: 8, AR033: 6, AR104: 4 L0748: 7, H0486: 5, L0740: 5, H0457: 4, H0521: 4, L0439: 4, L0777: 4, H0581: 3, H0040: 3, L0747: 3, L0779: 3, S0040: 2, S0376: 2, H0587: 2, H0013: 2, H0390: 2, H0622: 2, H0591: 2, S0422: 2, L0774: 2, L0659: 2, L0664: 2, L0749: 2, L0758: 2, S0434: 2, L0591: 2, H0423: 2, H0624: 1, H0685: 1, S0342: 1, H0650: 1, H0657: 1, H0300: 1, S0420: 1, S0408: 1, S0045: 1, H0462: 1, S0222: 1, H0574: 1, H0632:			537-556, 656-672, 459-475, 368-384, 623-639, 58-74, 4- 20, 260- 276	

1313	HTLHL43	905798	1323	299 - 649	2728	His-106 to Asp-116.	1, H0559: 1, H0036: 1, H0318: 1, H0263: 1, H0544: 1, H0046: 1, H0563: 1, L0471: 1, H0012: 1, H0373: 1, S0051: 1, H0083: 1, S6028: 1, H0266: 1, H0179: 1, H0271: 1, S0250: 1, H0039: 1, L0060: 1, T0067: 1, H0561: 1, S0440: 1, H0529: 1, L0763: 1, L0535: 1, L0646: 1, L0662: 1, L0363: 1, L0768: 1, L0766: 1, L0803: 1, L0653: 1, L0792: 1, L0665: 1, H0690: 1, H0658: 1, H0710: 1, S0152: 1, H0522: 1, H0696: 1, S0044: 1, H0134: 1, H0436: 1, L0743: 1, L0754: 1, L0755: 1, S0026: 1, H0667: 1, S0242: 1, S0194: 1, H0542: 1, H0422: 1 and H0712: 1.				32-64, 10- 34, 74-96
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1314	HLTAG56	905871	1324	136 - 1566	2729	Ser-248 to Ser-255, Thr-261 to Lys-267, Tyr-335 to Cys-342,			AR033: 10, AR052: 9, AR053: 9, AR104: 8, AR096: 7, AR060: 6,						

1315	HWLHJ13	905994	1325	117 - 1097	2730	His-466 to Ser-477.   
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1317	HOHBT28	906114	1327	168 - 533	2732	Met-1 to Gln-12, Arg-41 to Glu-52.	AR104: 3, AR055: 2, AR060: 2, AR061: 2 S0358: 4, H0644: 3, S0422: 3, H0423: 3, H0624: 2, H0171: 2, S0134: 2, S0007: 2, H0574: 2, H0250: 2, S0003: 2, H0518: 2, L0599: 2, H0422: 2, H0739: 1, H0740: 1, S0114: 1, H0341: 1, S0030: 1, H0580: 1, H0393: 1, H0587: 1, H0427: 1, H0042: 1, H0274: 1, H0581: 1, H0050: 1, H0083: 1, H0591: 1, H0623: 1, H0561: 1, H0641: 1, S0002: 1, H0529: 1, L0794: 1, L0803: 1, L0655: 1, L0606: 1, L0787: 1, L0664: 1, H0539: 1, H0710: 1, H0521: 1, H0522: 1, H0436: 1, L0779: 1, S0436: 1 and H0542: 1.					17-41, 58- 84
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1318	HAQCD43	906145	1328	189 - 722	2733	Thr-19 to Ala-33, Leu-54 to Asp-82, Pro-89 to Ala-97, Pro-100 to Lys-125, Ser-127 to Phe-135, Gly-164 to Leu-169, Cys-173 to Arg-178.	H0556: 2, H0013: 2, T0110: 2, H0572: 2, L0770: 2, L0803: 2, S0126: 2, L0439: 2, S0408: 1, S0132: 1, H0619: 1, H0549: 1, S6016: 1, H0266: 1, S0250: 1, H0615: 1, H0428: 1, H0039: 1, S0036: 1, H0591: 1, H0040: 1, H0616: 1, H0056: 1, T0041: 1, L0769: 1, L0637: 1, L0794: 1, L0804: 1, L0666: 1, H0648: 1, H0539: 1, H0696: 1, S0406: 1, L0748: 1, L0740: 1, L0745: 1, L0756: 1, L0752: 1, L0592: 1 and L0096: 1.					143-165, 2-18
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1319	HTPCP50	906161	1329	67 - 2139	2734	Ser-17 to Lys-24, Asp-58 to Asn-64, Gln-67 to Ser-81, Phe-90 to Thr-101, Gln-238 to Ser-250, Asp-261 to His-267, Pro-319 to Glu-329, Met-340 to Thr-346, Arg-360 to Arg-367, Asn-374 to Gly-388, Tyr-393 to His-405, Ile-455 to Lys-464.	L5569: 1, L0386: 1, L0381: 1, L0803: 1, L0804: 1, L0774: 1, L0775: 1, L0375: 1, L0655: 1, L0527: 1, L0657: 1, L0656: 1, L0783: 1, L0809: 1, L0530: 1, L0543: 1, L0791: 1, H0699: 1, S0148: 1, H0547: 1, H0519: 1, H0711: 1, H0690: 1, H0682: 1, H0660: 1, S0380: 1, S0454: 1, S0044: 1, H0576: 1, S3012: 1, S0037: 1, L0743: 1, L0755: 1, S0031: 1, H0445: 1, H0595: 1, L0593: 1, S0011: 1, H0665: 1, S0276: 1, H0542: 1, H0543: 1, H0422: 1 and H0506: 1.			425-455, 567-597, 618-639, 463-482, 486-509, 647-667, 504-524, 534-550, 3-19, 294- 310
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1320	HWLCJ12	906285	1330	704 - 1051	2735	Tyr-553 to Thr-558, Lys-670 to Leu-678.	H0713: 1, H0716: 1, T0049: 1, H0662: 1, S0356: 1, H0722: 1, H0486: 1, S0280: 1, H0575: 1, H0024: 1, H0375: 1, H0266: 1, H0428: 1, H0039: 1, T0006: 1, H0032: 1, H0090: 1, H0268: 1, H0413: 1, H0509: 1, L0375: 1, L0789: 1, L0666: 1, S0126: 1, H0670: 1, H0539: 1, H0521: 1, S0032: 1, L0754: 1, L0779: 1, L0759: 1, H0444: 1 and S0434: 1.					79-105, 41-57
1321	HTHCK88	906306	1331	646 -	2736	Asp-50 to Ser-58,	AR089: 5, AR039: 2, AR060: 1, AR052: 1, AR061: 1, AR055: 1, AR033: 1, AR096: 0, AR053: 0, AR104: 0 S0356: 4, H0596: 2, H0032: 2, H0685: 1, S0442: 1, S0354: 1, H0270: 1, H0156: 1, H0046: 1, H0622: 1, L0483: 1, H0674: 1, S0440: 1, L0372: 1, L0364: 1, L0805: 1, L0663: 1, S0374: 1, S0434: 1 and L0599: 1.	AR053: 41, AR096: 28,				168-203,

			1731	Glu-158 to Ala-163, Ser-252 to Trp-257, Gln-354 to Gln-362.	AR039: 25, AR052: 25, AR089: 20, AR104: 15, AR033: 15, AR060: 14, AR055: 13, AR061: 8 H0521: 6, H0036: 2, H0052: 2, H0271: 2, H0551: 2, H0265: 1, H0556: 1, H0392: 1, H0581: 1, H0063: 1, H0059: 1, H0494: 1, H0561: 1, H0520: 1, H0522: 1, S0436: 1, L0595: 1, H0543: 1, H0506: 1 and L0600: 1.			19-50, 219-246, 65-96, 259-282, 307-324
1322 HCE3M15	906350	1332	493 - 1455	Met-1 to Asn-6, Asp-103 to Thr-109.	AR053: 12, AR052: 11, AR033: 10, AR096: 10, AR055: 10, AR060: 9, AR089: 8, AR104: 7, AR061: 7, AR039: 3 L0752: 5, L0766: 3, H0586: 2, H0266: 2, H0031: 2, H0433: 2, L0776: 2, L0749: 2, L0758: 2, L0599: 2, H0556: 1, S6024: 1, H0600: 1, H0052: 1, H0545: 1, H0439: 1, H0628: 1, H0080: 1, L0598: 1, L0769: 1, L0637: 1, L0662: 1, L0774: 1, L0807: 1, L0659: 1, L0635: 1, L0666: 1, L0665: 1, L0565: 1, L0438:			277-293, 24-40, 221-237, 111-127

1323	HSKGT01	906487	1333	219 - 530	2738	Ser-15 to Gly-23.	1, H0435: 1, S0328: 1, H0539: 1, H0522: 1, H0696: 1, S0406: 1, H0478: 1, S0032: 1, L0748: 1, L0754: 1, L0750: 1, L0756: 1 and H0707: 1. AR096: 4, AR055: 4, AR052: 4, AR053: 3, AR039: 3, AR060: 3, AR033: 3, AR089: 3, AR104: 3, AR061: 2 L0805: 6, L0770: 5, L0803: 5, L0777: 5, L0776: 3, L0740: 3, L0750: 3, L0759: 3, H0599: 2, T0041: 2, H0670: 2, L0439: 2, L0747: 2, H0341: 1, S0418: 1, S0280: 1, H0318: 1, H0014: 1, S0250: 1, H0252: 1, H0328: 1, H0087: 1, H0494: 1, H0633: 1, L0763: 1, L0796: 1, L0651: 1, L0657: 1, L0558: 1, L0809: 1, L0789: 1, L0790: 1, L0666: 1, L0663: 1, H0519: 1, H0689: 1, H0710: 1, S0152: 1, S3014: 1, L0755: 1, H0445: 1, S0436: 1, L0599: 1, H0423: 1 and H0352: 1.				34-68, 81- 97, 63-79
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1324	HTAIL50	906718	1334	57 - 560	2739	Met-1 to Ser-6.	AR053: 23, AR052: 12, AR055: 11, AR096: 6, AR060: 6, AR061: 5, AR033: 5, AR089: 5, AR104: 3, AR039: 3 H0069: 1 and H0635: 1.			96-123, 136-160, 64-82, 22- 44
1325	HCRQM01	906770	1335	107 - 952	2740	Trp-72 to Glu-87, Pro-93 to Gly-105, Ser-117 to Ser-128, Trp-150 to Asp-163, Ser-218 to Pro-226.	AR096: 27, AR039: 25, AR033: 21, AR053: 18, AR089: 17, AR055: 14, AR104: 14, AR052: 13, AR060: 11, AR061: 9 L0758: 11, H0547: 10, H0013: 9, L0751: 8, H0486: 7, S0136: 7, L0754: 7, S0356: 6, L0771: 6, L0747: 6, S0134: 5, H0617: 5, S0440: 5, S0422: 5, L0770: 5, L0766: 5, H0696: 5, H0556: 4, H0341: 4, H0251: 4, H0083: 4, H0038: 4, H0040: 4, T0041: 4, H0529: 4, L0769: 4, H0144: 4, H0672: 4, S0330: 4, S0152: 4, L0748: 4, L0439: 4, L0779: 4, L0759: 4, H0543: 4, H0171: 3, H0657: 3, S0418: 3, S0360: 3, S0046: 3, H0574: 3, H0024: 3, H0412: 3, T0042: 3, L0764: 3, L0521: 3, L0794: 3,			12-37, 226-252, 258-274

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1326	HPJAS61	906877	1336	129 - 1445	2741	Leu-5 to Tyr-13, Phe-51 to Gly-63, Ser-178 to Trp-185, Phe-253 to Thr-259, Thr-267 to Trp-273, Arg-284 to Phe-292, Arg-416 to Pro-424.	H0520: 1, H0690: 1, H0683: 1, H0435: 1, H0414: 1, H0660: 1, H0666: 1, H0648: 1, H0478: 1, H0626: 1, S0027: 1, S0028: 1, L0740: 1, L0786: 1, H0595: 1, S0434: 1, S0436: 1, L0596: 1, L0592: 1, S0026: 1, H0542: 1, H0422: 1, S0412: 1, S0424: 1, S0384: 1, S0456: 1, L0600: 1 and H0712: 1.	21q22.3	120220, 120240, 123580, 151385, 171860, 190685, 236100, 236200, 240300, 267750, 600065, 601072, 601145	386-418, 323-339, 346-362		
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1327	HTEKL48	906879	1337	311 - 763	2742	Arg-3 to Pro-9.	1, S3014: 1, L0780: 1, L0731: 1, L0758: 1, S0031: 1, H0445: 1, S0434: 1, L0597: 1, L0608: 1, L0362: 1 and S0384: 1. AR033: 3, AR039: 2, AR089: 2, AR055: 1, AR061: 1, AR052: 1, AR060: 1, AR096: 1, AR053: 0, AR104: 0 H0023: 6, H0266: 5, H0286: 5, H0038: 4, S3014: 3, L0439: 3, S0011: 3, S0046: 2, H0635: 2, H0510: 2, H0616: 2, S0404: 2, H0436: 2, S0027: 2, S0040: 1, S0134: 1, S0116: 1, S0442: 1, S0444: 1, S0410: 1, H0393: 1, H0549: 1, H0431: 1, H0455: 1, H0600: 1, H0599: 1, T0082: 1, T0115: 1, H0544: 1, H0545: 1, H0563: 1, L0471: 1, H0267: 1, H0292: 1, S0214: 1, H0031: 1, H0644: 1, S0036: 1, H0163: 1, S0440: 1, L0662: 1, L0803: 1, L0805: 1, L0656: 1, L0558: 1, L0517: 1, L0809: 1, L0665: 1, H0144: 1, L0438:						79-95
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1328	HUVFI01	906880	1338	103 - 1212	2743	Phe-3 to Ser-9, Glu-64 to Lys-73, Lys-108 to Gly-118, Tyr-140 to Asp-150, Lys-182 to Leu-192.	1, H0520: 1, H0710: 1, H0522: 1, H0696: 1, H0478: 1, S0028: 1, S0206: 1, L0749: 1, S0434: 1, S0436: 1, L0596: 1, L0603: 1, H0667: 1 and H0136: 1. AR055: 3, AR060: 3, AR053: 3, AR033: 3, AR096: 3, AR089: 3, AR052: 2, AR061: 2, AR039: 1, AR104: 0	6p21.1-p12	179605, 179605, 179605, 179605, 179605, 180297, 230450, 248611, 263200, 600364, 601498, 601690	20-50, 70- 97, 118- 136, 247- 274, 283- 310, 201- 220	
1329	HHAOD94	906886	1339	859 - 308	2744	Trp-15 to Asn-25, Asp-87 to Glu-92, Lys-117 to Thr-123.	AR033: 9, AR052: 8, AR096: 8, AR104: 7, AR060: 6, AR053: 6, AR089: 5, AR055: 2, AR039: 2, AR061: 1 S0358: 8, L0777: 8, L0779: 6, L0766: 5, L0752: 5, L0775: 4, L0362: 4, L0803: 3, H0657: 2, H0441: 2, L0372: 2, L0784: 2, L0809: 2, L0665: 2, S0126:			147-167, 98-115, 64-80	

1330	HAGGF22	906890	1340	271 - 690	2745	His-6 to Glu-14, Arg-35 to Gln-40, Asp-103 to Glu-108, Lys-133 to Ala-138.	2, L0756: 2, L0755: 2, L0758: 2, L0759: 2, H0170: 1, H0171: 1, S0418: 1, S0360: 1, H0632: 1, S0346: 1, L0471: 1, H0373: 1, H0266: 1, S0334: 1, H0316: 1, H0412: 1, H0202: 1, S0440: 1, S0422: 1, L0763: 1, L0638: 1, L0764: 1, L0773: 1, L0662: 1, L0649: 1, L0804: 1, L0774: 1, L0666: 1, H0144: 1, H0691: 1, H0547: 1, H0690: 1, H0660: 1, S0136: 1, S0404: 1, S0406: 1, L0740: 1, L0754: 1, L0749: 1, L0750: 1, L0731: 1, L0757: 1, H0343: 1, S0026: 1 and H0543: 1.				114-131, 80-96
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1331	HLJDM86	906945	1341	113 - 565	2746	Glu-35 to Lys-42, Arg-96 to Ile-116.	AR033: 16, AR039: 14, AR096: 12, AR089: 12, AR104: 10, AR052: 10, AR060: 10, AR053: 10, AR055: 8, AR061: 4	2, L0809: 2, L0665: 2, S0126: 2, L0740: 2, L0756: 2, L0755: 2, L0758: 2, H0170: 1, S0418: 1, S0360: 1, H0632: 1, H0036: 1, S0010: 1, S0346: 1, L0471: 1, H0014: 1, H0373: 1, H0266: 1, S0334: 1, H0328: 1, H0316: 1, S0036: 1, H0412: 1, H0202: 1, S0440: 1, S0150: 1, H0646: 1, S0422: 1, L0763: 1, L0638: 1, L0764: 1, L0773: 1, L0662: 1, L0649: 1, L0804: 1, L0774: 1, L0666: 1, H0144: 1, H0691: 1, H0547: 1, H0519: 1, H0690: 1, H0683: 1, H0660: 1, S0136: 1, S0404: 1, S0406: 1, S0028: 1, L0754: 1, L0749: 1, L0750: 1, L0731: 1, L0757: 1, H0445: 1, H0343: 1, S0011: 1, S0026: 1 and H0543: 1.					134-150, 68-84, 46- 62
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1332	HTJMG26	906957	1342	45 - 1118	2747	Tyr-24 to Cys-30.	AR096: 4, AR039: 4, AR053: 3, AR052: 3, AR089: 3, AR033: 2, AR104: 2, AR061: 2, AR060: 2, AR055: 2 S0410: 11, L0803: 4, L0659: 4, H0618: 3, H0135: 3, L0637: 3, L0809: 3, L0666: 3, H0696: 3, L0779: 3, S0376: 2, S0132: 2, H0592: 2, H0253: 2, H0050: 2, H0087: 2, H0560: 2, L0761: 2, S0374: 2, L0743: 2, L0751: 2, L0749: 2, L0731: 2, L0759: 2, H0542: 2, H0543: 2, H0171: 1, H0225: 1, H0341: 1, S0212: 1, H0483: 1, S0444: 1, S0408: 1, H0393: 1, L0717: 1, H0370: 1, H0249: 1, H0486: 1, H0101: 1, H0250: 1, H0706: 1, T0048: 1, H0581: 1, H0545: 1, H0009: 1, H0024: 1, H0271: 1, H0288: 1, H0617: 1, S0364: 1, H0163: 1, H0551: 1, H0488: 1, H0100: 1, H0494: 1, L4497: 1, L0770: 1, L0769: 1, L5575: 1, L5565: 1, L3905: 1, L0646: 1,			218-243, 131-150, 47-68, 71- 90, 189- 206
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1333	HDP/Z04	906960	1343	160 - 762	2748	Met-1 to Tyr-15, His-19 to Asn-25, Ser-94 to Trp-103, Val-125 to Asn-131, Glu-149 to Phe-154, Thr-164 to Asn-173.			L0764: 1, L0766: 1, L0650: 1, L0774: 1, L0378: 1, L0788: 1, L0790: 1, L0664: 1, L0665: 1, S0126: 1, H0711: 1, S0330: 1, H0436: 1, S0392: 1, S0037: 1, L0742: 1, L0755: 1, L0758: 1, H0445: 1, H0653: 1 and H0423: 1.			36-74, 173-189
1334	HNTND88	906998	1344	150 - 1346	2749	Met-1 to Glu-16, Pro-27 to Ser-32, His-46 to Phe-58, Gln-67 to Arg-75, Arg-209 to Tyr-214, Ser-235 to Arg-244, Ser-303 to Asn-311.			AR039: 30, AR096: 23, AR089: 17, AR104: 16, AR052: 13, AR053: 12, AR033: 11, AR060: 11, AR055: 3, AR061: 2, H0521: 21, H0522: 3, H0090: 2, L0759: 2, H0638: 1, S0356: 1, S0360: 1, H0619: 1, L0021: 1, H0457: 1, H0111: 1, H0598: 1, S0426: 1, S0052: 1 and H0539: 1.	1p13		243-270, 149-171, 282-300, 373-389, 170-186, 114-130

1335	HJABT11	907007	1345	245 - 994	2750	Arg-38 to Ala-51, Pro-53 to His-68, Pro-94 to Arg-103, Met-111 to Leu-118, Arg-159 to Gly-165, Gly-235 to Arg-242, Pro-245 to Glu-250.	L0439: 2, L0465: 2, H0586: 1, H0497: 1, H0013: 1, H0024: 1, H0124: 1, H0561: 1, L0774: 1, L0664: 1, L0438: 1, H0520: 1, H0519: 1, H0539: 1, H0631: 1, L0747: 1, S0192: 1, S0276: 1 and H0352: 1. AR053: 5, AR055: 5, AR033: 4, AR052: 4, AR089: 3, AR096: 2, AR060: 2, AR061: 2, AR104: 0 L0439: 5, L0769: 4, T0041: 3, L0794: 3, S0380: 3, L0748: 3, T0006: 2, H0673: 2, L0809: 2, S0378: 2, H0556: 1, H0650: 1, H0657: 1, H0638: 1, S6026: 1, H0333: 1, H0253: 1, H0231: 1, H0150: 1, H0399: 1, T0023: 1, H0604: 1, H0213: 1, H0674: 1, H0038: 1, H0264: 1, H0059: 1, S0344: 1, L0646: 1, L0606: 1, L0661: 1, L0543: 1, L0789: 1, L0793: 1, S0216: 1, S0126: 1, S0330: 1, H0696: 1, L0777: 1, L0731: 1, S0434: 1 and L0592: 1.		601718, 602094		73-89, 120-138
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1336	HOU CY70	907030	1346	83 - 1009	2751	Asn-42 to Leu-62, Gln-96 to Lys-103, Asp-108 to Lys-117, Asn-122 to Leu-131, Met-144 to Glu-156, Glu-165 to Asp-172, Lys-191 to Glu-200, Tyr-211 to Ser-228, Gly-274 to Gly-281, Glu-302 to Gly-308.	AR089: 9, AR061: 8, AR039: 7, AR055: 7, AR060: 7, AR096: 6, AR104: 6, AR033: 5, AR052: 5, AR053: 4 H0618: 3, L0755: 3, S0436: 3, S0356: 2, H0253: 2, H0309: 2, H0123: 2, H0553: 2, L0369: 2, L0771: 2, L0774: 2, L0806: 2, L0666: 2, L0752: 2, L0601: 2, L0603: 2, S0040: 1, H0717: 1, S0180: 1, S0442: 1, S0132: 1, H0550: 1, H0333: 1, H0574: 1, H0545: 1, H0024: 1, H0015: 1, H0016: 1, H0266: 1, S0250: 1, H0213: 1, S0364: 1, S0366: 1, H0087: 1, H0379: 1, S0438: 1, S0440: 1, H0509: 1, L0769: 1, L0662: 1, L0766: 1, L0803: 1, L0804: 1, L0375: 1, L4669: 1, L0528: 1, L0663: 1, H0670: 1, S0028: 1, L0747: 1, L0779: 1, L0777: 1, S0434: 1, S0276: 1, S0196: 1 and H0542: 1.	1q21.2-q22	104770, 107670, 110700, 145001, 146760, 146790, 159440, 159440, 159440, 186780, 191030, 191315, 600923, 601412, 601652, 601863, 602491	9-31, 249- 265
1337	HWAEL33	907053	1347	389 - 901	2752	Ala-67 to Glu-72, Thr-91 to Ile-100.	AR033: 7, AR089: 6, AR052: 6, AR060: 4,		136-160, 105-121,	

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1338	HNHCM07	907060	1348	174 - 821	2753	Lys-9 to Gly-17.			AR104: 13, AR096: 9, AR033: 7, AR060: 7, AR089: 6, AR055: 6, AR052: 4, AR039: 4, AR053: 4, AR061: 3, L0070: 2, H0618: 1, H0252: 1, S0428: 1 and S0053: 1.				98-114
1339	HELGY02	907105	1349	222 - 2831	2754	Arg-30 to Ile-42, Asn-103 to Ser-117, Asn-146 to Ser-151, Lys-165 to Asn-171, Asn-177 to Tyr-191, Arg-205 to Met-210, Pro-225 to Ser-236, Pro-254 to His-259, Asp-391 to Val-396, Lys-402 to Trp-408, Lys-422 to Asp-444, Pro-494 to Glu-502, Gly-517 to Lys-528.			AR104: 1, AR089: 1, AR061: 1, AR060: 0, AR052: 0, AR039: 0, AR096: 0, AR033: 0, AR053: 0, AR055: 0				1-23, 358-374
1340	HTAFC46	907218	1350	237 - 659	2755	Met-6 to Gln-19, Phe-22 to Asn-28,			AR061: 3, AR060: 2, AR053: 1, AR089: 1,				120-141, 76-92

						Pro-30 to His-62.			AR033: 1, AR096: 0, AR055: 0, AR104: 0 H0069: 2, H0264: 2, H0253: 1, H0412: 1, H0623: 1, H0521: 1 and H0423: 1.			
1341	HRADL67	907233	1351	142 - 975	2756	Val-47 to His-56, Glu-87 to Arg-94.			AR039: 51, AR053: 42, AR033: 28, AR089: 25, AR096: 25, AR104: 24, AR052: 24, AR055: 20, AR060: 20, AR061: 11 T0040: 1, H0013: 1, H0056: 1, H0435: 1, S0152: 1, H0555: 1 and L0759: 1.			134-167, 184-206, 207-228, 240-267, 98-122, 63-85, 1- 18, 158- 174
1342	HDPQA54	907253	1352	93 - 1094	2757	Lys-53 to Ser-58, Ala-176 to Tyr-183, Lys-215 to Gln-220, Gly-261 to Gln-267.			AR096: 3, AR060: 3, AR089: 2, AR033: 2, AR053: 1, AR061: 1, AR055: 1, AR052: 1, AR104: 0, AR039: 0 H0521: 8, H0522: 4, H0580: 2, H0586: 2, S0036: 2, H0638: 1, H0250: 1, S0003: 1, H0111: 1, S0002: 1, H0529: 1, L0794: 1, L0803: 1, L0774: 1 and L0752: 1.			183-213, 135-161, 226-250, 33-51, 107-123, 282-298, 59-75
1343	HCFCS40	907375	1353	4252 - 3083	2758	Pro-20 to Leu-30.			AR060: 241, AR033: 229, AR055: 211, AR061: 142, AR089: 103, AR053: 85, AR052: 62, AR104: 48.	3p21.3	116806, 120120, 120120, 120120.	153-176, 205-229, 308-327, 34-50

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1344	HBINS69	907522	1354	1113 - 1415	2759	Ala-32 to Gly-37.	L0667: 1, L0372: 1, L0767: 1, L0803: 1, L0804: 1, L0774: 1, L0775: 1, L0375: 1, L0784: 1, L0655: 1, L0657: 1, L0783: 1, L0647: 1, L5622: 1, L5623: 1, L0664: 1, H0697: 1, S0374: 1, H0724: 1, H0520: 1, H0435: 1, H0710: 1, H0518: 1, S0152: 1, L0751: 1, L0759: 1, S0031: 1, H0445: 1, S0434: 1, S0436: 1, S0192: 1, S0424: 1 and L0600: 1. AR104: 8, AR033: 7, AR053: 6, AR055: 5, AR096: 5, AR039: 4, AR052: 3, AR089: 3, AR061: 2, AR060: 2 H0617: 12, L0745: 6, H0052: 5, H0521: 4, L0758: 4, L0740: 3, H0265: 2, H0556: 2, S0358: 2, H0327: 2, H0178: 2, L0766: 2, H0682: 2, L0744: 2, L0748: 2, L0439: 2, L0746: 2, L0750: 2, H0149: 1, H0663: 1, S0356: 1, H0675: 1, H0333: 1, H0581: 1, H0083: 1, H0615: 1, L0143: 1,				74-93
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1345	HKGAO47	907635	1355	214 - 1563	2760	Met-1 to Tyr-8, Glu-15 to Gly-24, Ser-64 to Glu-69, Cys-73 to Gly-79, Glu-104 to Asp-111, Asn-132 to Gln-139.	H0181: 1, S0036: 1, H0135: 1, H0087: 1, H0059: 1, H0494: 1, L0769: 1, L0372: 1, L0764: 1, L0648: 1, L0774: 1, L0783: 1, H0593: 1, H0660: 1, H0672: 1, S0028: 1, L0741: 1, L0751: 1, L0747: 1 and L0779: 1.				141-164, 358-377, 404-420, 422-438
1346	HMTBI19	907637	1356	1418 - 114	2761	Asp-2 to Asp-14, Ala-43 to Leu-52, Arg-111 to Thr-120, His-122 to Asn-130, Phe-168 to Ala-176, Thr-244 to Phe-249, Ser-261 to Asn-273, Glu-290 to Glu-296, Cys-303 to Lys-311, Tyr-334 to Val-339, Glu-358 to Ser-366, Ala-428 to Leu-435.	AR039: 10, AR096: 8, AR089: 7, AR052: 5, AR060: 5, AR104: 5, AR033: 5, AR053: 4, AR061: 2, AR055: 2	15q22.3	151670, 600374, 601780	216-232	

1347	HPMGN27	907728	1357	213 - 569	2762	Val-11 to Val-16, Leu-41 to Asp-57.	1, L0372: 1, L0646: 1, L0374: 1, L0803: 1, L0806: 1, L0805: 1, L0809: 1, L0789: 1, L0666: 1, L0664: 1, L0748: 1, L0754: 1, L0731: 1, L0596: 1, H0668: 1, S0026: 1 and H0352: 1.					99-116, 23-39
1348	HWLEP57	907757	1358	205 - 549	2763	Arg-75 to Lys-86.	AR055: 4, AR060: 3, AR061: 3, AR033: 3, AR089: 3, AR096: 2, AR053: 2, AR052: 2, AR104: 1, AR039: 0 L0748: 4, L0794: 2, L0659: 2, L0517: 2, H0519: 2, L0758: 2, L0021: 1, H0318: 1, H0266: 1, H0031: 1, L0564: 1, L0772: 1, L0662: 1, L0768: 1, L0803: 1, H0144: 1, S0374: 1, H0435: 1, H0666: 1, H0710: 1, L0749: 1, L0779: 1 and S0436: 1.					47-71, 6- 22



1349	HADGF57	907775	1359	104 - 1303	2764			2, L0157: 2, L0646: 2, L0803: 2, L0659: 2, L0748: 2, S0436: 2, L0581: 2, H0170: 1, S0376: 1, H0574: 1, H0632: 1, H0590: 1, H0596: 1, H0046: 1, H0510: 1, S0214: 1, H0622: 1, H0644: 1, H0598: 1, S0440: 1, H0509: 1, L0598: 1, L0649: 1, S0406: 1, S0434: 1 and L0601: 1.				193-224, 6-31, 170- 186, 145- 161
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1350	HDTIC42	907776	1360	26 - 1282	2765	Ala-27 to Glu-33, Asp-57 to Glu-69, Asn-134 to Thr-143, Met-185 to Arg-192, Ile-221 to Leu-234, Thr-249 to Asp-260, Ser-270 to Asp-275, Pro-366 to Gly-376.	1, H0574: 1, H0632: 1, H0250: 1, H0427: 1, S0280: 1, H0156: 1, L0021: 1, H0620: 1, H0594: 1, S0214: 1, H0622: 1, H0169: 1, H0135: 1, H0038: 1, H0634: 1, H0268: 1, H0623: 1, S0015: 1, S0438: 1, H0641: 1, H0646: 1, S0142: 1, S0344: 1, H0695: 1, L0598: 1, L0763: 1, L0769: 1, L0637: 1, L0667: 1, L0641: 1, L0764: 1, L0768: 1, L0806: 1, L0653: 1, L0655: 1, L0657: 1, L5623: 1, L0663: 1, L0665: 1, H0144: 1, H0702: 1, H0703: 1, H0519: 1, H0593: 1, S0330: 1, H0518: 1, H0521: 1, H0555: 1, L0779: 1, H0445: 1, H0543: 1 and H0423: 1.				189-220, 384-404, 298-314, 6-22
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1351	HHEXO20	907816	1361	939 - 1535	2766		AR096: 4, AR061: 2, AR089: 2, AR053: 2, AR055: 2, AR052: 2, AR104: 2, AR060: 2, AR039: 1, AR033: 1 L0749: 4, L0805: 3, L0759: 3, L0766: 2, L0776: 2, L0659: 2, L0439: 2, L0758: 2, H0052: 1, H0050:						

1352	HWLGN53	907823	1362	74 - 844	2767	Pro-35 to Asn-42, Asp-48 to Gln-54, Glu-62 to Pro-78, Pro-88 to Gln-94, Pro-97 to Pro-104, Pro-122 to His-127, Thr-130 to Ala-138.	1, H0016: 1, H0373: 1, H0179: 1, H0622: 1, H0380: 1, L0803: 1, L4501: 1, H0539: 1, S0436: 1, L0593: 1, H0543: 1 and H0422: 1. AR089: 7, AR052: 6, AR096: 6, AR060: 5, AR033: 5, AR053: 4, AR061: 3, AR055: 3, AR104: 3, AR039: 2 L0438: 6, H0486: 5, S0212: 4, S0250: 4, L0564: 4, L0766: 4, L0663: 4, H0144: 4, S0374: 4, L0749: 4, L0591: 4, H0251: 3, S0214: 3, H0551: 3, L0771: 3, L0659: 3, L0565: 3, H0521: 3, S0404: 3, S3014: 3, S0027: 3, L0759: 3, H0445: 3, L0595: 3, H0543: 3, H0657: 2, S0376: 2, S0360: 2, H0586: 2, H0587: 2, S0280: 2, H0156: 2, S0474: 2, H0428: 2, H0090: 2, L0662: 2, L0378: 2, L0519: 2, L0793: 2, S0328: 2, L0748: 2, L0439: 2, L0740: 2, L0747: 2, S0436: 2, L0597: 2, L0362: 2, L0361: 2, S0192: 2, H0542:				156-173, 197-213, 17-33, 173-189
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1353	HMAH65	907832	1363	21 - 1091	2768	Leu-20 to Gly-41, Met-53 to Asp-58, Asn-101 to Thr-111.	1, S0044: 1, S0032: 1, L0751: 1, L0750: 1, L0777: 1, L0752: 1, S0031: 1, S0434: 1, L0596: 1, L0588: 1, L0589: 1, L0592: 1, L0608: 1, H0665: 1, H0667: 1, S0194: 1, S0196: 1 and H0422: 1.				164-180
1354	HWAAX3 8	907899	1364	12 - 476	2769	Ala-18 to Gln-24.	AR039: 8, AR053: 7, AR060: 6, AR052: 6, AR061: 6, AR053: 6, AR104: 5, AR096: 4, AR089: 4, AR039: 3 L0439: 5, S6028: 3, S0007: 2, S0222: 2, L0740: 2, L0756: 2, H0657: 1, H0663: 1, H0393: 1, S0010: 1, H0581: 1, H0553: 1, H0551: 1, L0789: 1, H0555: 1, L0759: 1 and S0308: 1. AR039: 13, AR053: 8, AR096: 6, AR104: 6, AR033: 5, AR089: 5, AR052: 4, AR060: 4, AR055: 4, AR061: 2 H0423: 10, H0445: 7, H0556: 6, L0766: 6, S0134: 5, H0656: 5, H0486: 5, H0436: 5, H0657: 4, H0271:				130-149, 37-53

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1355	HTJNG15	908309	1365	623 - 1495	2770				1, L0805: 1, L0655: 1, L0607: 1, L0636: 1, L0518: 1, L0809: 1, L0787: 1, L0790: 1, L0791: 1, L0664: 1, S0052: 1, S0053: 1, H0698: 1, H0701: 1, H0539: 1, S0378: 1, H0521: 1, H0696: 1, H0214: 1, S0406: 1, L0747: 1, L0756: 1, L0779: 1, L0755: 1, L0758: 1, S0031: 1 and H0136: 1.					117-134, 144-160
1356	HSDJA72	908338	1366	1637 - 2539	2771	Gln-4 to Asn-20.			AR055: 2, AR033: 1, AR039: 1, AR096: 1, AR061: 1, AR089: 1, AR053: 1, AR104: 1, AR060: 1, AR052: 0 L0745: 16, L0743: 4, L0746: 4, L0779: 2, H0556: 1, S0045: 1, H0253: 1, H0172: 1, H0488: 1, L0640: 1, L0806: 1, H0522: 1, L0754: 1, L0750: 1, L0604: 1, L0601: 1 and H0543: 1. AR053: 6, AR096: 5, AR052: 5, AR089: 5, AR060: 3, AR104: 3, AR033: 3, AR055: 2, AR039: 2, AR061: 1 S0028: 13, S0126: 5,					170-201, 123-148, 101-123, 34-57, 209-229, 71-87,

1357	HMCHF75	908383	1367	158 - 1060	2772	Thr-70 to Trp-83, Asn-85 to Gly-91, Glu-182 to Leu-188, Asp-191 to Gly-196.	H0271: 4, S0052: 4, S0278: 3, S0031: 3, H0624: 2, H0171: 2, S0001: 2, S0282: 2, H0617: 2, S0036: 2, S0044: 2, H0170: 1, S0134: 1, S0218: 1, L0005: 1, S0358: 1, S0045: 1, S0222: 1, H0642: 1, H0574: 1, H0191: 1, S0280: 1, L0105: 1, S0049: 1, H0181: 1, S0144: 1, L0372: 1, L0367: 1, S0390: 1, S0260: 1, L0361: 1 and L0603: 1.			253-269, 285-301
							AR096: 17, AR089: 13, AR053: 12, AR060: 12, AR052: 11, AR055: 9, AR033: 9, AR039: 6, AR104: 5, AR061: 4 H0521: 7, S0344: 4, S0002: 3, S0142: 2, S6014: 1, H0431: 1, S0051: 1, S0015: 1, S0426: 1, H0701: 1, H0539: 1 and H0522: 1.			198-227, 1-21, 238- 254
1358	HDTAZ43	908412	1368	217 - 1233	2773		AR096: 5, AR089: 3, AR053: 2, AR104: 2, AR039: 2, AR033: 2, AR061: 2, AR060: 1, AR055: 1, AR052: 1 L0803: 6, L0809: 4,			123-142, 272-288, 204-220, 225-241, 94-110

1359	HAAAN55	908451	1369	148 - 1542	2774	Met-1 to Glu-8, Ile-13 to Arg-19, Ser-29 to Ser-38, Ser-53 to Phe-67, Thr-80 to Met-86, Arg-101 to Arg-113, Ser-120 to Arg-125.	H0616: 3, L0789: 3, L0749: 3, S0007: 2, H0617: 2, L0455: 2, H0412: 2, L0769: 2, L0761: 2, L0764: 2, L0662: 2, L0794: 2, L0805: 2, L0779: 2, L0752: 2, L0758: 2, H0422: 2, H0550: 1, H0431: 1, H0486: 1, H0618: 1, H0253: 1, H0744: 1, H0194: 1, H0135: 1, H0488: 1, S0440: 1, H0647: 1, L0800: 1, L0771: 1, L0766: 1, L0804: 1, L0776: 1, L0655: 1, L0791: 1, L0663: 1, H0683: 1, H0696: 1, L0742: 1, L0747: 1, L0777: 1, L0757: 1, L0592: 1 and L0599: 1.					407-423, 377-394
1360	HBODI05	908697	1370	66 - 1883	2775	Met-1 to Leu-7, Asp-67 to Lys-72, Arg-205 to Asn-214, Lys-230 to Lys-238,	AR033: 4, AR096: 3, AR060: 3, AR053: 3, AR089: 2, AR052: 2, AR055: 1, AR061: 1, AR104: 0, AR039: 0 H0646: 1 and L0770: 1.					536-552, 135-151, 105-121, 299-315,

1361	HAAJAH16	908763	1371	879 - 2036	2776	Ser-244 to Lys-250, Leu-263 to Ala-271, Asp-318 to Glu-323, Ile-333 to Ser-338, Asp-356 to Leu-364, Gly-453 to Thr-462, Pro-470 to Asp-477, Phe-528 to Ser-533, Glu-572 to Glu-577.	AR053: 1, AR039: 0 L0604: 28, L0747: 16, S0364: 14, L0750: 12, L0485: 11, S0366: 10, H0708: 8, H0723: 8, H0171: 6, H0706: 6, H0144: 6, L0809: 5, L0777: 5, H0170: 4, L0520: 4, H0725: 4, H0624: 3, L0375: 3, L0471: 2, S0362: 2, H0616: 2, L0759: 2, L0623: 1, H0013: 1, H0041: 1, H0050: 1, H0373: 1, L0163: 1, S0294: 1, L0776: 1, L0783: 1, L0790: 1, L0791: 1 and L0749: 1.			81-97, 486-502
1362	HOUDS09	908843	1372	410 -	2777	Leu-9 to Leu-18, Pro-36 to Asp-48, Ala-117 to Gln-133, Leu-137 to Ala-142, Arg-159 to Asp-164, Arg-170 to Ser-177, Gly-205 to Thr-224, Ser-253 to Asp-262, Gly-303 to Gly-313, Val-320 to Ile-335, Pro-353 to Phe-367, Asp-376 to Asp-386.	AR089: 8, AR061: 6, AR060: 3, AR033: 3, AR096: 1, AR055: 0, AR052: 0, AR039: 0, AR053: 0 H0561: 1, H0520: 1 and L0748: 1.			334-350, 141-157
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1363	HLWAF59	908860	1373	36 - 1088	2778	Thr-20 to Tyr-28, Lys-51 to Lys-65, Glu-69 to Leu-86, Lys-106 to Gln-130, Gln-136 to Ser-141, Glu-160 to Glu-173, Leu-177 to Ser-186.	AR052: 9, AR053: 6, AR096: 4, AR033: 4, AR089: 3, AR060: 3, AR039: 3, AR104: 2, AR055: 1, AR061: 1 L0657: 2, L0362: 2, S0276: 2, H0686: 1, H0685:			332-348

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1364	HCFNN18	908915	1374	69 - 557	2779	Met-1 to Asn-13, Asn-38 to Lys-47, Ile-86 to Cys-101.		AR053: 4, AR096: 4, AR033: 3, AR089: 3, AR052: 2, AR060: 2, AR039: 1, AR104: 1, AR055: 1, AR061: 1 H0423: 1			66-82	
1365	HMSCR89	909056	1375	194 - 1831	2780	Asp-142 to Arg-149, Leu-181 to Glu-190, Gln-203 to Leu-215, Arg-217 to Lys-222, Ile-226 to Val-233, Glu-236 to Gly-244, Lys-254 to Val-262, Leu-287 to Asp-296, Ser-324 to Glu-331, Phe-336 to Asn-341, Lys-348 to Arg-353, Ser-357 to Gln-372, Ser-394 to Ala-409, Leu-434 to Glu-447,		AR053: 13, AR096: 12, AR052: 10, AR089: 9, AR060: 8, AR033: 7, AR055: 7, AR104: 7, AR039: 5, AR061: 4 L0766: 13, S0474: 6, H0305: 5, L0439: 3, L0731: 3, H0052: 2, S0002: 2, H0529: 2, L0764: 2, L0653: 2, L0666: 2, S0328: 2, H0521: 2, L0751: 2, L0750: 2, L0599: 2, L0604: 2, H0650: 1, S0116: 1, H0341: 1, H0589: 1, S0418: 1,	15q26	180090, 600318	96-116	

1366	HDPCW53	909101	1376	532 - 1158	2781	Ser-467 to Lys-472, Glu-474 to Val-479, Ser-507 to Gly-517.	S0420: 1, H0580: 1, H0607: 1, H0486: 1, H0575: 1, H0318: 1, H0544: 1, H0050: 1, H0373: 1, H0083: 1, S0003: 1, H0622: 1, H0424: 1, H0617: 1, H0032: 1, S0440: 1, H0509: 1, S0426: 1, L0769: 1, L0637: 1, L0761: 1, L0667: 1, L0768: 1, L0774: 1, L0378: 1, L0806: 1, L0776: 1, L0655: 1, L0657: 1, L0382: 1, L4501: 1, L0663: 1, L0665: 1, H0519: 1, S0126: 1, H0648: 1, S0330: 1, H0539: 1, L0602: 1, S0406: 1, S0037: 1, S0027: 1, S0028: 1, L0756: 1, L0779: 1, L0752: 1, S0260: 1, H0445: 1, L0608: 1 and L0366: 1.	128-150
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1367	HTOGI77	909159	1377	59 - 526	2782	H0624: 2, L0471: 2, H0266: 2, H0494: 2, L0372: 2, L0803: 2, L0438: 2, H0521: 2, L0740: 2, H0423: 2, H0170: 1, H0171: 1, S0134: 1, S0360: 1, S0222: 1, H0441: 1, H0333: 1, H0013: 1, H0244: 1, H0251: 1, T0110: 1, H0046: 1, H0014: 1, H0032: 1, S0036: 1, T0042: 1, H0366: 1, S0306: 1, S0438: 1, S0440: 1, S0150: 1, S0422: 1, L0598: 1, L0770: 1, L0637: 1, L0521: 1, L0662: 1, L0766: 1, L0804: 1, L0653: 1, L0512: 1, L0647: 1, L0790: 1, L0665: 1, H0144: 1, H0520: 1, H0593: 1, S0126: 1, H0690: 1, H0660: 1, H0666: 1, H0648: 1, S0380: 1, H0518: 1, S0404: 1, S0032: 1, L0751: 1, L0747: 1, L0779: 1, L0752: 1, L0755: 1, L0589: 1, H0668: 1, H0422: 1 and H0293: 1. AR039: 16, AR033: 14, AR104: 14, AR060: 12, AR055: 12, AR053: 11, AR089: 10, AR052: 9,				75-99, 25- 42, 59-75
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1368	HUCOF58	909344	1378	2090 - 1119	2783	Pro-77 to Arg-84, Tyr-109 to Thr-114.	<p>H0214: 1, S0404: 1, L0744: 1, L0740: 1, L0731: 1, L0759: 1, L0604: 1, L0595: 1, L0362: 1, H0653: 1, H0665: 1 and H0422: 1.</p> <p>AR060: 2, AR033: 1, AR089: 1, AR053: 1, AR061: 1, AR096: 1, AR039: 1, AR055: 0, AR052: 0, AR104: 0, H0677: 8, L0748: 7, H0556: 6, L0769: 6, L0747: 6, H0599: 5, H0521: 5, H0135: 4, L0770: 4, L0775: 4, L0439: 4, L0759: 4, S0434: 4, S0222: 3, H0620: 3, H0617: 3, H0412: 3, L0659: 3, L0438: 3, H0547: 3, S0406: 3, L0758: 3, H0542: 3, H0265: 2, H0664: 2, S0360: 2, S0132: 2, L0471: 2, H0012: 2, S0388: 2, H0266: 2, H0087: 2, H0646: 2, L0662: 2, L0766: 2, L0352: 2, S0404: 2, L0744: 2, L0779: 2, L0757: 2, S0436: 2, L0596: 2, H0543: 2, H0423: 2, S0040: 1, H0638: 1, S0420: 1, S0354: 1, S0358: 1, S0376:</p>				<p>275-303, 177-205, 298-320, 52-71, 141-160, 252-270, 214-230, 20-36, 116-132, 89-105</p>
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1369	HAPBL13	909390	1379	1663 -	2784	1, H0728: 1, H0734: 1, S0046: 1, L0717: 1, S0278: 1, H0369: 1, H0392: 1, H0592: 1, L0623: 1, H0486: 1, S0280: 1, T0048: 1, S0049: 1, H0052: 1, H0194: 1, H0597: 1, H0231: 1, H0320: 1, H0107: 1, S6028: 1, H0292: 1, H0039: 1, H0628: 1, H0181: 1, H0182: 1, H0606: 1, H0673: 1, H0591: 1, H0040: 1, H0551: 1, H0494: 1, H0561: 1, S0142: 1, S0344: 1, S0002: 1, L0369: 1, L0640: 1, L0371: 1, L3905: 1, L0372: 1, L0646: 1, L0764: 1, L0648: 1, L0768: 1, L0774: 1, L0776: 1, L0655: 1, L0517: 1, L5622: 1, L0788: 1, L0666: 1, L0664: 1, H0701: 1, T0068: 1, H0519: 1, H0682: 1, H0684: 1, H0658: 1, H0539: 1, S0380: 1, H0518: 1, S0152: 1, H0522: 1, L0745: 1, L0749: 1, L0755: 1, L0731: 1, H0445: 1, L0599: 1, H0665: 1 and H0008: 1.	AR055: 15, AR061: 11,				128-157,
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569	AR052: 9, AR089: 8, AR060: 8, AR033: 7, AR053: 6, AR096: 5, AR039: 5, AR104: 4 L0659: 6, H0521: 4, L0439: 4, L0745: 4, L0759: 4, H0556: 3, H0657: 3, S0360: 3, L0761: 3, L0662: 3, L0766: 3, L0809: 3, H0549: 2, H0392: 2, H0253: 2, H0581: 2, H0620: 2, H0051: 2, H0551: 2, H0494: 2, L0770: 2, L0794: 2, L0649: 2, L0665: 2, H0520: 2, S0032: 2, L0741: 2, L0743: 2, L0748: 2, L0747: 2, L0779: 2, L0758: 2, L0605: 2, H0650: 1, H0484: 1, H0254: 1, H0402: 1, S0358: 1, H0580: 1, S0007: 1, S0132: 1, S0476: 1, H0393: 1, H0369: 1, H0550: 1, H0409: 1, H0256: 1, H0250: 1, H0042: 1, H0036: 1, H0318: 1, S0049: 1, H0050: 1, H0014: 1, H0375: 1, S6028: 1, H0292: 1, H0428: 1, H0622: 1, H0031: 1, H0617: 1, L0456: 1, H0135: 1, H0040: 1, H0379:			40-63, 12- 33, 235- 258, 113- 136, 205- 223, 269- 287, 299- 315, 165- 181
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1370	HHEEN22	909508	1380	1628 - 450	2785	Ser-4 to Ser-9, Pro-45 to Ile-51, Gly-76 to His-81, Val-102 to Asn-110, Asp-123 to Pro-140, Asn-196 to Leu-208, Asp-227 to Gly-232, Ala-343 to Thr-351, Pro-359 to Ser-378, Pro-384 to Ser-393.	1, H0264: 1, H0056: 1, H0623: 1, H0633: 1, S0002: 1, H0529: 1, L0762: 1, L5575: 1, L0772: 1, L0646: 1, L0771: 1, L0773: 1, L0767: 1, L0768: 1, L0803: 1, L0805: 1, L0653: 1, L4501: 1, L0666: 1, H0689: 1, H0690: 1, H0682: 1, H0670: 1, H0522: 1, S0044: 1, H0436: 1, S0027: 1, L0754: 1, L0749: 1, L0753: 1, L0731: 1, S0436: 1, H0653: 1, S0192: 1, H0542: 1, H0543: 1 and H0423: 1. AR089: 7, AR033: 5, AR061: 5, AR060: 2, AR096: 1, AR053: 1, AR104: 0, AR052: 0, AR055: 0 L0751: 5, S0358: 4, L0769: 3, L0659: 3, S0356: 2, S0354: 2, S0376: 2, H0253: 2, H0551: 2, L0771: 2, L0809: 2, L0665: 2, H0650: 1, H0483: 1, H0255: 1, H0402: 1, S0360: 1, L0717: 1, H0550: 1, S6014: 1, H0592: 1, H0486: 1, H0618: 1, S0049: 1, H0178:				210-226, 262-278
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1371	H2CBH75	909587	1381	2304 - 1204	2786	Glu-122 to Asn-129, Glu-143 to Asn-148, Lys-150 to Ala-162, Ala-202 to Arg-208, Phe-252 to Thr-260, Pro-347 to His-363.	1, N0007: 1, L0483: 1, H0606: 1, L0639: 1, L0803: 1, L0775: 1, L0661: 1, L0657: 1, L0783: 1, H0724: 1, H0689: 1, H0522: 1, H0696: 1, L0748: 1, L0439: 1, L0750: 1, L0752: 1, H0445: 1, S0192: 1 and H0542: 1. AR052: 20, AR033: 13, AR055: 12, AR053: 12, AR089: 11, AR060: 9, AR104: 7, AR096: 7, AR061: 7, AR039: 5 L0766: 17, H0694: 14, L0758: 11, L0740: 6, L0591: 6, L0769: 5, L0773: 5, L0748: 5, L0754: 5, L0777: 5, H0575: 4, L0772: 4, L0768: 4, L0438: 4, L0747: 4, L0750: 4, L0601: 4, H0656: 3, H0013: 3, H0050: 3, H0622: 3, H0040: 3, H0529: 3, L0770: 3, L0774: 3, L0664: 3, H0144: 3, H0547: 3, H0521: 3, H0696: 3, L0749: 3, L0752: 3, L0757: 3, L0759: 3, H0556: 2, S0356: 2, H0486: 2, T0110: 2, H0572: 2,				18-51, 167-202, 214-245, 66-96, 304-324, 263-280
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	L0471: 2, S0250: 2, H0428: 2, H0039: 2, H0616: 2, H0561: 2, S0426: 2, L0637: 2, L0761: 2, L0803: 2, L0804: 2, L0659: 2, S0126: 2, H0659: 2, H0539: 2, S0152: 2, L0439: 2, L0755: 2, L0592: 2, L0604: 2, H0423: 2, H0624: 1, H0171: 1, S0116: 1, S0212: 1, H0402: 1, H0638: 1, S0442: 1, S0376: 1, S0444: 1, S0408: 1, L0149: 1, S0132: 1, H0619: 1, H0393: 1, S0300: 1, S6016: 1, H0600: 1, H0069: 1, H0156: 1, L0021: 1, H0318: 1, H0052: 1, H0251: 1, H0597: 1, H0327: 1, N0006: 1, H0201: 1, T0010: 1, H0510: 1, T0078: 1, H0266: 1, S0003: 1, S0214: 1, H0615: 1, H0124: 1, S0366: 1, S0036: 1, H0090: 1, H0591: 1, H0038: 1, L0060: 1, H0551: 1, H0488: 1, H0412: 1, H0056: 1, L0564: 1, T0041: 1, T0042: 1, H0538: 1, S0002: 1, L0369: 1, L0763: 1, L0638: 1, L0646: 1.	
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1372	HTLHU05	909665	1382	174 - 1409	2787	Thr-30 to Gly-36, Asp-44 to Asp-51, Pro-145 to Lys-151, Ala-161 to Ser-168.	L0764: 1, L0648: 1, L0662: 1, L0794: 1, L0649: 1, L0561: 1, L0775: 1, L0376: 1, L0806: 1, L0653: 1, L0655: 1, L0657: 1, L0517: 1, L0783: 1, L0647: 1, L0666: 1, L0663: 1, H0691: 1, H0519: 1, H0670: 1, H0660: 1, H0648: 1, S0406: 1, H0436: 1, H0576: 1, S0027: 1, S0206: 1, L0756: 1, L0731: 1, S0260: 1, H0444: 1, L0596: 1, L0588: 1, L0605: 1, L0608: 1, L0594: 1, S0026: 1, H0665: 1, H0667: 1, L0096: 1 and S0424: 1.				194-210, 71-87
1373	HDPFG85	909673	1383	665 - 1102	2788	Glu-16 to Arg-23, Phe-43 to Trp-50,	AR055: 4, AR061: 3, AR096: 3, AR052: 3, AR089: 3, AR060: 2, AR033: 2, AR053: 2, AR039: 1, AR104: 0 H0618: 64, H0253: 52, L0758: 6, L0779: 2, H0392: 1, H0038: 1, L0761: 1, L0803: 1, L0806: 1, L0807: 1 and L0697: 1.				114-131, 67-83

					Val-59 to Asp-66.	AR060: 1, AR055: 1, AR061: 1, AR039: 0, AR052: 0, AR104: 0 H0585: 6, H0255: 6, H0457: 3, H0539: 3, H0657: 2, L0622: 2, H0634: 2, H0063: 2, L0789: 2, H0436: 2, S0218: 1, H0650: 1, H0254: 1, H0592: 1, H0486: 1, H0069: 1, H0575: 1, H0327: 1, H0083: 1, H0179: 1, H0271: 1, L0055: 1, H0616: 1, T0041: 1, H0646: 1, H0695: 1, L0369: 1, L0769: 1, L0794: 1, L0766: 1, L0774: 1, L0809: 1, H0522: 1, L0779: 1, L0731: 1, H0136: 1, S0276: 1, H0543: 1, H0423: 1 and H0422: 1.				
1374	HWMIIB81	909678	1384	51 - 572	2789	AR096: 2, AR053: 2, AR039: 1, AR060: 1, AR089: 1, AR055: 1, AR061: 1, AR104: 1, AR052: 1, AR033: 1 L0748: 2, H0171: 1, S0134: 1, S0354: 1, S0358: 1, H0014: 1, H0083: 1, H0510: 1, L0764: 1, L0803: 1, L0789: 1, H0593: 1,				83-100

1375	HSYDI55	909692	1385	105 - 1199	2790	Thr-26 to Glu-37, Lys-82 to Asn-92, Gly-122 to Ile-128, Glu-152 to Thr-157, Ala-159 to Arg-169, Lys-176 to Lys-181, Lys-183 to Arg-196, Ser-200 to Glu-207, Pro-256 to Ser-267, Ser-305 to Ala-310, Glu-348 to Gly-354.	H0659: 1, H0539: 1, H0555: 1, L0751: 1, L0758: 1, L0759: 1 and L0595: 1. AR052: 16, AR053: 9, AR033: 5, AR089: 4, AR096: 3, AR060: 3, AR104: 2, AR055: 2, AR039: 1, AR061: 1 H0651: 11, L0794: 8, H0038: 5, L0805: 4, L0758: 4, S0358: 3, S0476: 3, L0766: 3, L0803: 3, L0665: 3, H0144: 3, H0521: 3, L0748: 3, L0740: 3, L0756: 3, H0222: 2, S0420: 2, S0360: 2, H0551: 2, H0412: 2, S0440: 2, L0804: 2, L0789: 2, L0666: 2, L0747: 2, S0436: 2, L0599: 2, H0542: 2, H0223: 1, H0159: 1, H0717: 1, H0716: 1, S0282: 1, H0580: 1, S0046: 1, H0411: 1, H0486: 1, H0013: 1, H0596: 1, L0738: 1, H0544: 1, H0046: 1, L0471: 1, H0014: 1, H0083: 1, S0003: 1, H0553: 1, L0055: 1, H0124: 1, H0591: 1, H0616: 1, H0059: 1, H0494: 1, S0294: 1, H0529:				323-339
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1376	HHFJU87	909720	1386	110 - 1225	2791	Ser-4 to Ser-28, Leu-37 to Glu-45, Pro-86 to Leu-94, Glu-150 to Leu-157, Leu-168 to Trp-177, Ser-242 to Ala-249, Glu-340 to Asp-348, Phe-365 to Val-371.	1, L0770: 1, L0769: 1, L0800: 1, L0644: 1, L0764: 1, L0771: 1, L0662: 1, L0364: 1, L0653: 1, L0776: 1, L0655: 1, L0659: 1, L0526: 1, L0382: 1, S0148: 1, H0693: 1, S0328: 1, S0152: 1, H0436: 1, H0631: 1, S3014: 1, S0027: 1, L0439: 1, L0749: 1, L0779: 1, L0777: 1, L0731: 1, L0757: 1, H0444: 1, H0445: 1, S0026: 1, S0242: 1, S0194: 1 and H0423: 1.				292-309, 180-197, 99-115
						AR039: 4, AR053: 2, AR033: 1, AR089: 1, AR061: 0, AR060: 0, AR096: 0, AR055: 0, AR104: 0 L0740: 10, L0747: 9, L0731: 9, S0126: 7, S0360: 5, H0623: 5, L0809: 5, L0750: 5, L0757: 4, L0471: 3, L0662: 3, L0777: 3, L0752: 3, L0759: 3, S0376: 2, H0619: 2, H0261: 2, L0021: 2, H0544: 2, H0644: 2, H0551: 2, H0413: 2, H0056: 2, H0100: 2, L0762: 2, L0769: 2, L0764: 2,					

1377	HDHIB39	909774	1387	25 - 1038	2792	Thr-2 to Arg-33, Ser-80 to Lys-85.	L0649: 2, L0659: 2, L0666: 2, L0439: 2, L0751: 2, L0749: 2, L0755: 2, L0758: 2, L0596: 2, S0242: 2, T0049: 1, S0418: 1, S0420: 1, S0356: 1, H0340: 1, S0046: 1, L0717: 1, H0369: 1, H0370: 1, H0587: 1, H0599: 1, H0052: 1, H0596: 1, T0115: 1, H0123: 1, H0051: 1, H0510: 1, H0266: 1, H0286: 1, H0328: 1, H0428: 1, H0628: 1, H0673: 1, H0169: 1, L0456: 1, T0069: 1, S0014: 1, L0763: 1, L0770: 1, L0646: 1, L0800: 1, L0794: 1, L0803: 1, L0804: 1, L0375: 1, L0806: 1, L0654: 1, L0657: 1, L0783: 1, L0792: 1, L0663: 1, S0374: 1, H0593: 1, H0435: 1, H0658: 1, H0672: 1, S0380: 1, S0146: 1, S014: 1, S0206: 1, L0743: 1, L0744: 1, L0779: 1, H0595: 1, L0591: 1, H0653: 1, S0194: 1, S0276: 1 and H0352: 1. AR096: 2, AR052: 2, AR089: 2, AR039: 1,				223-242
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1378	HTXSR92	909802	1388	272 - 1360	2793	Glu-24 to Pro-34, Leu-45 to Glu-51.	AR053: 1, AR060: 1, AR061: 1, AR033: 1, AR055: 1, AR104: 1 H0571: 1, H0038: 1, S0052: 1 and S0216: 1.				91-115, 189-205, 58-74
1379	HWEAD65	909868	1389	282 - 605	2794		AR039: 2, AR060: 1, AR089: 1, AR061: 0, AR052: 0, AR096: 0, AR033: 0, AR055: 0, AR104: 0, AR053: 0 H0265: 1, H0556: 1 and H0083: 1.				64-82
1380	HUUAR12	909906	1390	124 - 717	2795	Glu-37 to Trp-42, Arg-64 to Lys-69.	AR052: 3, AR055: 3, AR033: 3, AR104: 2, AR096: 2, AR053: 2, AR089: 2, AR061: 1, AR060: 1, AR039: 0 T0049: 2, S0046: 2, S0045: 1, H0261: 1, H0611: 1, H0601: 1, S0250: 1, L0666: 1, H0672: 1, H0522: 1, L0780: 1 and S0276: 1.	2			176-192

1381	HEMBT61	909941	1391	31 - 351	2796	Asp-83 to Asp-90.	2, L0752: 2, H0656: 1, H0661: 1, H0586: 1, H0590: 1, H0594: 1, L0769: 1, L0761: 1, L0800: 1, L0662: 1, L0766: 1, L0803: 1, L0651: 1, L0805: 1, L0659: 1, L0788: 1, L0666: 1, L0779: 1, S0434: 1 and S0276: 1.					63-81
1382	HNTCE17	909957	1392	14 - 799	2797		AR104: 10, AR055: 10, AR033: 10, AR060: 6, AR089: 5, AR052: 5, AR039: 5, AR061: 5, AR053: 5, AR096: 4, L0547: 2, S0046: 1, L0471: 1, L0772: 1, L0529: 1 and L0780: 1. AR104: 2, AR055: 2, AR052: 2, AR039: 1, AR033: 1, AR053: 1, AR089: 1, AR096: 1, AR060: 1, AR061: 1, H0618: 5, L0747: 5, L0766: 4, H0253: 3, L0794: 3, L0439: 3, S0420: 2, H0587: 2, H0333: 2, L0769: 2, L0764: 2, L0526: 2, L0438: 2, H0520: 2, H0658: 2, H0539: 2, L0731: 2,					74-91, 232-248, 16-32

1383	HFFA V24	910038	1393	40 - 552	2798	Met-1 to Glu-6, Glu-12 to Gly-17, Arg-23 to Gly-48.	L0758: 2, L0604: 2, H0265: 1, H0556: 1, H0583: 1, H0650: 1, S0212: 1, S0356: 1, H0619: 1, H0351: 1, H0441: 1, L0622: 1, L0623: 1, H0635: 1, H0036: 1, H0251: 1, H0309: 1, L0738: 1, H0051: 1, S6028: 1, L0055: 1, S0366: 1, H0038: 1, H0040: 1, H0634: 1, H0623: 1, H0561: 1, H0130: 1, H0633: 1, L0763: 1, L0772: 1, L0641: 1, L0662: 1, L0363: 1, L0649: 1, L0803: 1, L0776: 1, L0659: 1, L0635: 1, L0666: 1, L0663: 1, L0665: 1, H0144: 1, H0547: 1, H0519: 1, L0611: 1, L0779: 1, S0260: 1 and S0436: 1.	22q13.31	250100, 250800, 250800	50-66, 125-141, 106-122
							AR055: 13, AR061: 8, AR033: 7, AR060: 7, AR053: 6, AR052: 6, AR089: 5, AR096: 4, AR039: 2, AR104: 2 L0748: 12, L0740: 11, L0439: 9, H0052: 8, L0666: 6, H0616: 5, L0776: 5, L0742: 5, L0744: 5, L0750: 5, L0601: 5, S0444: 4.			



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1384	HEOPL36	910057	1394	407 - 769	2799	Arg-25 to Gly-50, Ser-86 to Arg-91, Ala-95 to Thr-101.	S0051: 1, T0010: 1, H0510: 1, S6028: 1, H0188: 1, H0687: 1, H0252: 1, H0644: 1, S0036: 1, H0163: 1, H0090: 1, H0551: 1, H0264: 1, H0488: 1, H0056: 1, H0100: 1, L0564: 1, T0041: 1, H0649: 1, H0652: 1, S0344: 1, S0002: 1, L0763: 1, L0761: 1, L0372: 1, L0642: 1, L0643: 1, L0764: 1, L0768: 1, L0766: 1, L0381: 1, L0775: 1, L0526: 1, L0782: 1, L0663: 1, L0665: 1, H0703: 1, H0693: 1, H0520: 1, H0435: 1, L0741: 1, L0751: 1, L0757: 1, S0260: 1, H0445: 1, L0584: 1, L0608: 1, L0604: 1, S0412: 1 and H0506: 1.	22q13.31	250100, 250800, 250800	52-68	
							AR053: 20, AR052: 19, AR039: 19, AR096: 19, AR089: 18, AR033: 17, AR060: 15, AR104: 13, AR055: 8, AR061: 6 L0740: 11, L0439: 9, L0748: 8, H0616: 5, L0666: 5, L0601: 5, S0444: 4, L0776: 4, L0659: 4, L0744: 4, L0747: 4, L0749: 4,				

	L0755: 4, H0457: 3, L0770: 3, L0774: 3, L0750: 3, H0624: 2, T0002: 2, S0116: 2, S0358: 2, S0410: 2, H0550: 2, T0040: 2, H0013: 2, H0599: 2, H0050: 2, H0673: 2, H0038: 2, H0040: 2, H0494: 2, L0662: 2, L0364: 2, L0375: 2, L0809: 2, L0438: 2, H0547: 2, H0521: 2, L0754: 2, L0756: 2, L0752: 2, L0731: 2, L0758: 2, L0485: 2, S0040: 1, H0583: 1, H0650: 1, H0657: 1, H0341: 1, H0663: 1, S0408: 1, H0580: 1, H0619: 1, L0717: 1, H0574: 1, H0052: 1, H0263: 1, H0009: 1, H0172: 1, H0024: 1, T0010: 1, H0510: 1, H0644: 1, S0036: 1, H0551: 1, H0264: 1, H0488: 1, H0056: 1, H0100: 1, L0564: 1, T0041: 1, H0652: 1, S0344: 1, S0002: 1, L0763: 1, L0638: 1, L0761: 1, L0372: 1, L0643: 1, L0764: 1, L0768: 1, L0381: 1, L0775: 1, L0526: 1, L0782: 1, L0663: 1, L0665: 1,	
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1385	HFKJM30	910061	1395	85 - 678	2800	Gly-19 to Ser-25, Ser-55 to Arg-61, Gly-69 to Trp-74, Phe-166 to Thr-171.	H0703: 1, H0520: 1, H0435: 1, S0044: 1, L0751: 1, L0757: 1, L0759: 1, H0445: 1, L0584: 1, L0608: 1 and H0506: 1. AR033: 5, AR060: 2, AR089: 2, AR039: 2, AR061: 1, AR096: 1, AR104: 1, AR055: 1, AR053: 0 L0744: 6, H0013: 4, L0483: 4, S0126: 4, L0777: 4, H0620: 3, L0005: 2, S0022: 2, H0622: 2, L0774: 2, L0748: 2, L0779: 2, L0362: 2, H0624: 1, H0170: 1, S0040: 1, S0212: 1, S0358: 1, S0376: 1, S0360: 1, H0486: 1, H0069: 1, H0156: 1, H0012: 1, S0003: 1, H0038: 1, H0616: 1, H0413: 1, T0042: 1, L0598: 1, L0646: 1, L0740: 1, L0756: 1, L0758: 1, L0599: 1, L0608: 1, S0011: 1, S0026: 1, S0276: 1 and L0465: 1.				78-97, 2- 18
1386	HTEPE35	910083	1396	226 - 762	2801	Leu-35 to Asn-43, Ser-70 to Asp-76,	AR061: 3, AR055: 3, AR096: 3, AR060: 2,				110-126, 50-66

1387	HIBEG14	910301	1397	49 - 966	2802	Pro-87 to Val-97, Pro-105 to Thr-110.	AR052: 2, AR089: 2, AR033: 2, AR053: 1, AR039: 1, AR104: 1 L0758: 7, L0768: 2, H0616: 1 and L0151: 1. AR060: 2, AR053: 2, AR089: 2, AR039: 1, AR033: 1, AR096: 1, AR061: 1, AR104: 1, AR055: 0, AR052: 0 L0794: 8, L0741: 7, L0731: 5, H0556: 4, L0805: 4, L0439: 4, L0749: 4, L0758: 4, S0007: 3, H0351: 3, H0253: 3, H0457: 3, L0456: 3, L0803: 3, L0665: 3, L0777: 3, L0759: 3, H0581: 2, L0769: 2, L0800: 2, L0776: 2, L0659: 2, L0789: 2, L0438: 2, H0547: 2, S0126: 2, L0743: 2, L0744: 2, L0748: 2, L0593: 2, H0543: 2, H0170: 1, H0125: 1, S0354: 1, S0045: 1, S0046: 1, S0132: 1, H0619: 1, H0550: 1, S0222: 1, H0370: 1, H0587: 1, H0497: 1, T0039: 1, H0706: 1, H0618: 1, H0052: 1, H0572: 1, H0050: 1, H0024:	10q24	157640, 174900, 180250, 186770, 236730, 271245, 278000, 278000, 600095, 600512, 601107, 601130, 602082	132-149, 35-51	
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1388	HIBCH43	910448	1398	2010 - 946	2803	Glu-21 to Gln-28, Leu-40 to Ile-47, Ile-56 to Leu-61, Pro-85 to Leu-93, Ser-212 to Met-221, Thr-236 to Asn-241.	1, H0051: 1, H0021: 1, T0010: 1, H0355: 1, S0022: 1, H0428: 1, H0622: 1, H0181: 1, H0551: 1, H0056: 1, H0641: 1, H0646: 1, H0652: 1, S0344: 1, H0529: 1, L0369: 1, L0667: 1, L0644: 1, L0766: 1, L0804: 1, L0806: 1, L0636: 1, L0783: 1, L0809: 1, L0532: 1, L0666: 1, L0663: 1, H0144: 1, H0670: 1, H0539: 1, S0152: 1, H0696: 1, L0751: 1, L0754: 1, L0747: 1, L0786: 1, L0752: 1, H0667: 1, H0423: 1 and L0697: 1.				294-315, 326-342, 149-165
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	H0341: 28, H0521: 27, L0593: 27, H0031: 26, H0040: 23, L0588: 23, L0591: 23, T0049: 22, H0351: 22, H0083: 22, S0036: 22, H0090: 22, H0318: 21, L0439: 20, S0038: 18, S0049: 17, H0024: 17, S0046: 16, S0011: 16, H0295: 15, S0045: 15, H0494: 15, L0740: 15, S0031: 15, L0594: 15, H0543: 15, H0171: 14, H0123: 14, L0747: 14, L0608: 14, S0040: 13, H0046: 13, L0754: 13, H0584: 12, H0051: 12, S0022: 12, H0135: 12, L0596: 12, L0601: 12, H0170: 11, H0294: 11, S0278: 11, H0327: 11, H0012: 11, H0551: 11, S0002: 11, S0126: 11, T0039: 10, H0156: 10, S0144: 10, H0333: 9, N0006: 9, H0050: 9, S6028: 9, T0006: 9, H0617: 9, H0087: 9, H0522: 9, S0037: 9, S0212: 8, H0125: 8, S0346: 8, H0251:	
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1389	HELDY60	910451	1399	209 - 631	2804	Val-37 to Gly-43, Thr-92 to Gly-98, Val-114 to Gly-123.	1, H0211: 1, H0361: 1, H0388: 1, H0376: 1, H0400: 1, H0372: 1, H0058: 1, H0116: 1, H0433: 1, T0069: 1, H0079: 1, S0386: 1, S0112: 1, S0016: 1, H0366: 1, S0352: 1, S0370: 1, S0306: 1, H0386: 1, S0438: 1, H0509: 1, S0150: 1, S0142: 1, L0598: 1, S0374: 1, L0438: 1, S0122: 1, H0435: 1, S0332: 1, S0013: 1, S0044: 1, S0188: 1, H0134: 1, S0432: 1, S0124: 1, L0742: 1, L0753: 1, L0758: 1, H0444: 1 and : 1. AR096: 3, AR055: 3, AR053: 2, AR060: 2, AR061: 2, AR033: 2, AR052: 2, AR089: 2, AR039: 1, AR104: 1 L0803: 8, L0748: 6, H0170: 2, H0013: 2, H0031: 2, H0038: 2, L0805: 2, H0624: 1, S0360: 1, H0151: 1, S0045: 1, H0574: 1, H0046: 1, H0068: 1, S0438: 1, L0771: 1, L0662: 1, L0804: 1, L0774: 1, L0776: 1, H0519: 1, H0696: 1,						63-79, 123-139
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1390	HDPRX11	910465	1400	222 - 1208	2805	L0750: 1 and L0731: 1. AR089: 6, AR060: 6, AR053: 5, AR096: 4, AR039: 4, AR055: 3, AR104: 3, AR033: 3, AR061: 1, AR052: 0 L0759: 7, S0410: 3, L0761: 3, L0805: 3, S0442: 2, S0354: 2, H0620: 2, T0010: 2, H0617: 2, H0100: 2, L0763: 2, L0648: 2, L0794: 2, L0803: 2, L5623: 2, L0438: 2, H0520: 2, L0746: 2, L0758: 2, L0596: 2, L0601: 2, H0265: 1, H0556: 1, H0686: 1, H0685: 1, H0295: 1, S0134: 1, H0341: 1, H0483: 1, S0420: 1, L0005: 1, S0444: 1, S0360: 1, H0722: 1, S0045: 1, S0132: 1, H0550: 1, H0415: 1, H0642: 1, H0575: 1, H0590: 1, H0618: 1, H0253: 1, H0581: 1, H0046: 1, H0375: 1, H0292: 1, H0031: 1, H0135: 1, H0413: 1, L0351: 1, H0647: 1, S0144: 1, S0002: 1, L0369: 1, L0772: 1, L0764: 1, L0768: 1, L0774: 1, L0806:	230-260, 17-43, 88- 118, 56-85
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1391	HDPBN81	910569	1401	1155 - 2687	2806	Asp-35 to Asp-41, Ser-72 to Glu-77, Lys-110 to His-115, Pro-160 to Gln-165, Arg-309 to Ala-318, Met-325 to Ala-335, Glu-419 to Ala-431, Thr-439 to Trp-449, Pro-489 to Tyr-502.	1, L0652: 1, L0776: 1, L0629: 1, L0656: 1, L0659: 1, L0809: 1, L0790: 1, L0666: 1, H0703: 1, H0684: 1, H0435: 1, H0658: 1, H0672: 1, H0539: 1, H0521: 1, S0176: 1, S0406: 1, H0436: 1, L0439: 1, L0779: 1, H0343: 1, S0436: 1, H0543: 1 and S0424: 1.					361-395, 275-306, 176-195, 216-242, 235-252, 137-157
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1392	HSLJF08	910686	1402	244 - 813	2807	Gln-34 to Phe-39, Pro-41 to Ala-49.	<p>H0069: 1, H0427: 1, H0581: 1, H0194: 1, H0012: 1, H0083: 1, H0266: 1, H0039: 1, H0181: 1, H0634: 1, H0412: 1, H0647: 1, S0344: 1, L0769: 1, L0800: 1, L0794: 1, L0804: 1, L0629: 1, L0789: 1, L0792: 1, H0672: 1, H0539: 1, L0755: 1, H0445: 1, H0665: 1, H0542: 1, H0423: 1 and S0424: 1.</p> <p>AR039: 24, AR053: 21, AR052: 18, AR055: 17, AR033: 14, AR104: 13, AR089: 13, AR096: 13, AR060: 11, AR061: 9, L0748: 14, H0620: 11, L0740: 10, L0747: 10, L0766: 9, L0770: 7, L0662: 7, L0659: 7, L0809: 7, L0803: 5, H0543: 5, H0050: 4, H0023: 4, H0135: 4, L0666: 4, L0664: 4, H0521: 4, S0436: 4, H0265: 3, H0295: 3, H0657: 3, H0341: 3, H0733: 3, H0550: 3, H0370: 3, H0575: 3, H0083: 3, H0494: 3, L0769: 3, L0794: 3, L0655: 3, L0783:</p>					9-34, 129-178, 155-178, 89-107
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1393	HAGAE60	910706	1403	120 - 551	2808	Ser-64 to Ser-73.	AR055: 7, AR033: 4, AR060: 4, AR061: 3, AR052: 3, AR104: 3, AR089: 3, AR096: 2, AR053: 2, AR039: 0 S0010: 4, L0471: 2, L0748: 2, L0759: 2, S0031: 2, H0369: 1, H0263: 1, N0006: 1, H0373: 1, H0356: 1, H0644: 1, S0428: 1 and L0438: 1.			106-129
1394	HTJN149	910714	1404	78 - 1472	2809	Glu-46 to Glu-59, Cys-81 to Asn-89, Asn-96 to Asn-103, Pro-166 to Gly-171, Glu-269 to Cys-275, Thr-285 to Asn-292, Glu-312 to Cys-324, Asp-326 to Asn-332.	AR104: 16, AR033: 15, AR039: 6, AR096: 6, AR053: 6, AR089: 5, AR060: 4, AR052: 3, AR055: 3, AR061: 3 L0439: 15, L0748: 12, L0438: 10, H0457: 8, S0126: 8, L0770: 7, S0358: 6, L0769: 6, H0547: 6, L0759: 6, L0794: 5, L0803: 5, H0710: 5, L0744: 5, S0045: 4, S0046: 4, H0013: 4, H0635: 4, H0156: 4, H0052: 4, H0623: 4, L0667: 4, L0766: 4, L0805: 4, L0659: 4, H0648: 4, L0601: 4, S0356: 3, S0222: 3, H0599: 3, H0510: 3, H0591: 3, S0344: 3, L0764: 3,			362-396, 19-36

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1395	HUFBA64	910722	1405	554 - 1144	2810	Ser-33 to Thr-48, Gln-50 to Met-56,	H0546: 1, H0545: 1, H0046: 1, H0123: 1, H0023: 1, H0006: 1, H0014: 1, H0200: 1, H0328: 1, H0428: 1, H0622: 1, H0119: 1, H0030: 1, H0553: 1, H0644: 1, H0032: 1, H0212: 1, S0036: 1, H0090: 1, H0038: 1, H0040: 1, H0433: 1, H0056: 1, H0059: 1, S0112: 1, L0351: 1, H0494: 1, S0015: 1, S0016: 1, H0560: 1, H0366: 1, S0440: 1, S0144: 1, S0002: 1, L0369: 1, L0763: 1, L0662: 1, L0768: 1, L0649: 1, L0527: 1, L0540: 1, L0518: 1, L0382: 1, L0809: 1, L0790: 1, L0792: 1, L0532: 1, L0666: 1, L0665: 1, S0216: 1, H0702: 1, S0374: 1, L0352: 1, H0670: 1, H0672: 1, S0330: 1, H0539: 1, S0152: 1, H0521: 1, S0146: 1, S0406: 1, H0555: 1, S0392: 1, H0478: 1, L0780: 1, L0755: 1, H0445: 1, S0436: 1 and L0581: 1.				H0546: 1, H0545: 1, H0046: 1, H0123: 1, H0023: 1, H0006: 1, H0014: 1, H0200: 1, H0328: 1, H0428: 1, H0622: 1, H0119: 1, H0030: 1, H0553: 1, H0644: 1, H0032: 1, H0212: 1, S0036: 1, H0090: 1, H0038: 1, H0040: 1, H0433: 1, H0056: 1, H0059: 1, S0112: 1, L0351: 1, H0494: 1, S0015: 1, S0016: 1, H0560: 1, H0366: 1, S0440: 1, S0144: 1, S0002: 1, L0369: 1, L0763: 1, L0662: 1, L0768: 1, L0649: 1, L0527: 1, L0540: 1, L0518: 1, L0382: 1, L0809: 1, L0790: 1, L0792: 1, L0532: 1, L0666: 1, L0665: 1, S0216: 1, H0702: 1, S0374: 1, L0352: 1, H0670: 1, H0672: 1, S0330: 1, H0539: 1, S0152: 1, H0521: 1, S0146: 1, S0406: 1, H0555: 1, S0392: 1, H0478: 1, L0780: 1, L0755: 1, H0445: 1, S0436: 1 and L0581: 1.				101-132
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						Ser-59 to Gly-70, Ala-72 to Gln-81, Lys-87 to Arg-101.		AR089: 1, AR033: 0, AR052: 0 L0803: 7, S0358: 3, L0774: 3, L0748: 2, S0354: 1, H0489: 1, H0549: 1, H0036: 1, H0590: 1, H0597: 1, H0510: 1, H0509: 1, L0771: 1, L0768: 1 and H0506: 1.				
1396	HMTAX31	910866	1406	115 - 666	2811	Lys-18 to Lys-30, Asp-57 to Thr-64, Arg-133 to Lys-140, Leu-150 to Ala-165.		AR096: 7, AR053: 6, AR089: 6, AR039: 6, AR052: 5, AR060: 5, AR033: 4, AR104: 3, AR061: 1, AR055: 1 L0777: 4, S0358: 2, S0126: 2, H0522: 2, S0116: 1, H0638: 1, H0443: 1, H0014: 1, H0379: 1, S0016: 1, S0374: 1, H0518: 1, H0521: 1 and L0740: 1.				83-100, 167-183
1397	HSSAL39	910902	1407	97 - 465	2812			AR053: 128, AR055: 124, AR052: 116, AR089: 103, AR060: 100, AR033: 76, AR061: 75, AR096: 64, AR104: 40, AR039: 39 H0041: 1 and H0135: 1.				90-110
1398	HE8QR01	911011	1408	45 - 599	2813	Tyr-80 to Ser-90, Gly-173 to Ser-185.		AR039: 46, AR053: 34, AR052: 29, AR033: 26, AR055: 25, AR089: 23,				108-124, 111-28

1399	HLDQK77	911038	1409	1941 - 2330	2814	Cys-24 to Gly-29, Gly-56 to Pro-68, Arg-115 to Glu-120, Gly-125 to Gly-130.	AR096: 20, AR104: 17, AR060: 16, AR061: 16 L0776: 4, L0805: 2, H0013: 1, H0509: 1, L0794: 1, H0547: 1, H0658: 1, L0439: 1, L0751: 1, L0747: 1 and L0731: 1.					32-57, 83- 99
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1400	HTXDX21	911129	1410	79 - 1170	2815	Ser-236 to Asn-248, Pro-251 to Cys-259, Pro-265 to Gly-277, Pro-284 to Gly-289, Pro-295 to Ala-300, Asn-308 to Ser-316, Gly-354 to Arg-360.	1, H0510: 1, H0594: 1, H0028: 1, H0644: 1, S0364: 1, S0366: 1, H0591: 1, H0100: 1, L0763: 1, L0631: 1, L0637: 1, L0646: 1, L0641: 1, L0644: 1, L0649: 1, L0803: 1, L0775: 1, L0782: 1, L0809: 1, L0519: 1, L0665: 1, H0144: 1, H0726: 1, L0438: 1, H0684: 1, H0672: 1, S0380: 1, L0748: 1, L0759: 1, S0434: 1, L0596: 1, L0366: 1, L0600: 1 and H0352: 1.				95-123, 153-177, 66-82, 21- 38, 182- 198, 131- 147
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1401	HMSHP51	911153	1411	101 - 1447	2816	Ser-2 to Ala-10, His-108 to Lys-114, Gln-190 to Leu-199, Tyr-276 to Gln-282, Glu-308 to Lys-313, Lys-370 to Arg-376, Gln-383 to His-388, Gly-408 to Trp-417, Ser-420 to Thr-426.	H0268: 1, H0494: 1, H0646: 1, H0547: 1, H0593: 1, H0689: 1, H0660: 1, H0666: 1, H0539: 1, H0518: 1, H0521: 1, L0746: 1 and H0136: 1.				125-141, 251-267
						AR089: 16, AR104: 15, AR096: 15, AR033: 14, AR053: 13, AR055: 11, AR060: 10, AR052: 10, AR061: 8, AR039: 5 L0758: 6, H0618: 4, L0517: 4, L0747: 4, H0038: 3, L0770: 3, L0769: 3, L0439: 3, L0749: 3, H0662: 2, H0333: 2, H0674: 2, S0002: 2, L0794: 2, L0766: 2, L0649: 2, H0144: 2, S0328: 2, S0406: 2, L0759: 2, H0556: 1, S0040: 1, H0657: 1, H0255: 1, S0360: 1, H0208: 1, H0411: 1, S0278: 1, H0549: 1, H0370: 1, L0021: 1, S0010: 1, H0052: 1, H0194: 1, H0150: 1, H0009: 1, H0178: 1, H0188: 1, H0644: 1, L0455: 1, S0036: 1, H0090: 1, H0616: 1, H0063: 1, L0351: 1, H0641: 1, S0344: 1,					

1402	HJPBB56	778816	1412	85 - 483	2817	Glu-20 to Arg-25, Phe-73 to His-79, Phe-126 to Lys-133.	S0426: 1, H0695: 1, L0506: 1, L0643: 1, L0644: 1, L0764: 1, L0662: 1, L0806: 1, L0776: 1, L0655: 1, L0634: 1, L0383: 1, L0809: 1, L0666: 1, L0663: 1, H0690: 1, H0658: 1, S0330: 1, H0555: 1, S3014: 1, L0750: 1, L0779: 1, L0777: 1, L0753: 1, L0608: 1 and L0594: 1.					105-123, 52-68
							AR052: 85, AR053: 67, AR096: 64, AR055: 55, AR089: 48, AR104: 46, AR061: 37, AR033: 35, AR060: 35, AR039: 33 L0748: 7, L0747: 7, L0777: 7, L0731: 7, L0803: 6, S0212: 4, L0751: 4, L0754: 4, S0358: 3, L0794: 3, L0517: 3, L0809: 3, H0663: 2, S0038: 2, L0637: 2, L0771: 2, L0775: 2, L0526: 2, L0783: 2, L0790: 2, H0144: 2, L0744: 2, L0439: 2, L0752: 2, L0758: 2, L0594: 2, L0603: 2, H0624: 1, S0408: 1, H0393: 1, H0549: 1, H0333: 1, L0477: 1, S0010: 1, H0567:					



1403	HPWAS05	843051	1413	179 - 514	2818			1, H0011: 1, H0012: 1, H0620: 1, H0083: 1, H0099: 1, H0615: 1, H0688: 1, H0628: 1, H0135: 1, H0038: 1, H0616: 1, H0087: 1, H0264: 1, H0412: 1, H0396: 1, H0647: 1, L0770: 1, L0662: 1, L0768: 1, L0766: 1, L0804: 1, L0806: 1, L0805: 1, L0776: 1, L0657: 1, L0558: 1, L0792: 1, L0663: 1, H0520: 1, H0547: 1, H0519: 1, H0658: 1, H0670: 1, H0672: 1, S0328: 1, S0380: 1, L0779: 1, S0192: 1 and H0542: 1. AR055: 12, AR060: 8, AR061: 8, AR096: 6, AR089: 6, AR033: 6, AR053: 5, AR052: 4, AR104: 4, AR039: 4 L0749: 2, L0483: 1, S0036: 1, H0264: 1 and S0044: 1.				53-83, 16- 32
1404	HUSIC81	886711	1414	71 - 724	2819	Pro-78 to Lys-83.		AR039: 35, AR055: 17, AR052: 16, AR053: 16, AR089: 15, AR096: 15, AR033: 13, AR104: 11, AR060: 10, AR061: 4				115-151, 27-59, 86- 107, 177- 198, 1-25, 202-218

						H0556: 494, H0265: 241, H0046: 107, L0601: 101, H0584: 98, H0521: 89, H0543: 78, S0027: 57, H0542: 57, L0591: 52, S0418: 49, S3014: 48, S0420: 46, H0559: 46, L0593: 44, L0596: 43, S0126: 42, H0266: 41, S0046: 38, S0152: 37, H0052: 36, H0617: 35, H0056: 34, H0134: 34, L0595: 33, S0040: 32, S0212: 32, H0561: 32, H0069: 31, H0286: 30, H0585: 29, S0132: 29, L0666: 29, H0083: 26, H0623: 25, H0657: 24, S0278: 24, H0575: 24, H0341: 23, H0494: 23, S0045: 21, L0659: 21, H0666: 21, L0588: 21, L0592: 21, H0090: 20, S0344: 20, L0751: 20, L0754: 20, S0194: 20, H0040: 19, H0125: 18, H0618: 18, H0318: 18, L0663: 18, H0144: 18, H0013: 17, S0022: 17, H0424: 17, H0135: 17,				
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T0042: 17, H0658: 17, S0011: 17, S0192: 17, S0360: 16, T0040: 15, H0292: 15, H0063: 15, L0748: 15, H0136: 15, H0167: 14, S0358: 14, S0222: 14, H0599: 14, H0124: 14, H0087: 14, H0551: 14, L0775: 14, L0664: 14, H0519: 14, H0518: 14, S0037: 14, H0250: 13, H0253: 13, H0581: 13, H0457: 13, S0028: 13, T0002: 12, H0141: 12, H0140: 12, T0110: 12, H0014: 12, H0288: 12, H0628: 12, H0412: 12, S0144: 12, S0002: 12, L0662: 12, L0653: 12, S0032: 12, H0667: 12, H0370: 11, H0290: 11, H0622: 11, S0150: 11, H0641: 11, H0522: 11, L0750: 11, L0608: 11, H0665: 11, S0424: 11, H0580: 10, H0333: 10, S0628: 10, H0284: 10, H0591: 10, H0634: 10, L0744: 10, L0757: 10, H0352: 10,									
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	T0039: 9, L0471: 9, H0620: 9, S0036: 9, H0560: 9, H0529: 9, L0372: 9, L0665: 9, H0435: 9, L0740: 9, H0445: 9, L0597: 9, H0423: 9, H0650: 8, H0431: 8, H0586: 8, H0257: 8, H0486: 8, H0038: 8, H0616: 8, H0264: 8, H0059: 8, H0100: 8, H0625: 8, L0369: 8, L0363: 8, L0378: 8, L0382: 8, H0555: 8, H0631: 8, L0755: 8, H0624: 7, H0255: 7, H0587: 7, H0497: 7, H0492: 7, H0635: 7, S0049: 7, L0388: 7, L0774: 7, L0654: 7, L0657: 7, H0670: 7, H0660: 7, H0672: 7, L0742: 7, L0439: 7, L0747: 7, L0752: 7, L0758: 7, L0599: 7, S0342: 6, H0295: 6, H0638: 6, S0444: 6, S0468: 6, H0156: 6, T0115: 6, H0545: 6, H0123: 6, H0024: 6, H0606: 6, S0210: 6, S0426: 6, L0381: 6, L0655: 6, L0383: 6, H0520: 6, H0689: 6, H0659: 6, L0602: 6, H0214: 6, H0159: 5, T0049: 5, H0661: 5,								
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S0442: 5, H0619: 5, L0717:
5, S0010: 5, H0309: 5,
H0544: 5, H0050: 5, H0012:
5, T0010: 5, H0594: 5,
H0188: 5, H0615: 5, H0213:
5, H0553: 5, H0644: 5,
H0181: 5, H0268: 5, S0038:
5, H0429: 5, H0646: 5,
S0142: 5, S0208: 5, L0763:
5, L0770: 5, L0767: 5,
L0565: 5, H0547: 5, H0682:
5, S0328: 5, H0627: 5,
L0589: 5, H0668: 5, S0196:
5, H0422: 5, S0116: 4,
H0662: 4, H0402: 4, S0356:
4, S0354: 4, S0007: 4,
H0550: 4, H0441: 4, H0438:
4, H0643: 4, T0109: 4,
H0075: 4, H0036: 4, S0182:
4, H0327: 4, H0546: 4,
H0051: 4, H0375: 4, L0456:
4, H0647: 4, L0637: 4,
L0646: 4, L0764: 4, L0648:
4, L0375: 4, L0518: 4,
H0690: 4, H0436: 4, H0626:
4, L0745: 4, L0731: 4,
H0171: 3, H0218: 3, S0134:
3, S0282: 3, H0664: 3,
H0458: 3, S0376: 3, S0300:
3, H0261: 3, H0549: 3,

H0455: 3, T0060: 3, H0427: 3, H0042: 3, T0082: 3, H0590: 3, S0346: 3, H0421: 3, H0196: 3, H0194: 3, H0204: 3, H0086: 3, S0051: 3, H0510: 3, H0267: 3, S0003: 3, H0039: 3, T0006: 3, H0032: 3, H0674: 3, H0068: 3, H0272: 3, H0413: 3, L0564: 3, H0280: 3, H0130: 3, S0422: 3, L0771: 3, L0768: 3, L0387: 3, L0376: 3, L0368: 3, H0648: 3, S0330: 3, S0380: 3, S0044: 3, S0390: 3, S0260: 3, H0444: 3, H0595: 3, S0434: 3, L0587: 3, H0653: 3, L0600: 3, H0149: 2, H0685: 2, H0294: 2, S0114: 2, H0583: 2, S0180: 2, S0298: 2, H0306: 2, H0449: 2, H0459: 2, H0675: 2, H0637: 2, H0393: 2, H0437: 2, H0592: 2, S0005: 2, H0574: 2, H0256: 2, L0623: 2, L0586: 2, H0251: 2, T0103: 2, H0150: 2, H0041: 2, N0006: 2, H0172: 2, H0081: 2, H0200: 2, N0007: 2, H0071: 2, H0355: 2,
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S0312: 2, S0250: 2, S0214: 2, H0328: 2, H0688: 2, L0483: 2, H0033: 2, H0031: 2, L0142: 2, L0143: 2, L0455: 2, S0366: 2, H0316: 2, H0598: 2, H0163: 2, T0067: 2, H0488: 2, L0351: 2, H0366: 2, S0440: 2, H0509: 2, H0132: 2, L0762: 2, L0769: 2, L0638: 2, L0642: 2, L0521: 2, L0766: 2, L0386: 2, L0540: 2, S0006: 2, S0374: 2, S0148: 2, H0684: 2, H0539: 2, S0146: 2, H0576: 2, S0392: 2, S0206: 2, L0741: 2, L0777: 2, L0753: 2, L0759: 2, S0436: 2, L0605: 2, L0590: 2, L0604: 2, L0362: 2, L0366: 2, H0216: 2, H0170: 1, H0395: 1, H0219: 1, H0224: 1, H0225: 1, H0161: 1, H0220: 1, H0158: 1, H0222: 1, H0686: 1, S6024: 1, L0002: 1, H0656: 1, L0785: 1, H0419: 1, S0001: 1, H0254: 1, H0671: 1, H0176: 1, H0305: 1, S0348: 1, L0005: 1, S0408: 1, S0410: 1, T0008: 1,
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	L0428: 1, H0722: 1, H0208: 1, H0645: 1, S6026: 1, H0351: 1, H0411: 1, L0394: 1, S0220: 1, H0392: 1, H0357: 1, H0409: 1, H0403: 1, H0282: 1, H0600: 1, H0362: 1, H0331: 1, H0491: 1, H0485: 1, H0270: 1, T0112: 1, H0122: 1, H0004: 1, H0390: 1, T0048: 1, H0505: 1, H0085: 1, H0183: 1, H0205: 1, H0596: 1, H0597: 1, H0231: 1, H0121: 1, H0439: 1, L0041: 1, H0009: 1, N0003: 1, S0050: 1, L0163: 1, S0388: 1, H0275: 1, H0399: 1, H0354: 1, H0271: 1, H0416: 1, S0318: 1, S0316: 1, H0428: 1, T0023: 1, H0604: 1, H0180: 1, H0182: 1, L0055: 1, H0165: 1, H0166: 1, H0673: 1, H0361: 1, H0189: 1, H0400: 1, H0379: 1, H0477: 1, H0433: 1, H0269: 1, H0022: 1, T0041: 1, L0475: 1, S0382: 1, S0464: 1, S0306: 1, H0131: 1, H0633: 1, H0026: 1, L0640: 1, L0371: 1, L0667: 1,	
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1405	HUCPE29	897919	1415	38-823	2820	Gln-26 to Ala-39, Cys-48 to His-55, Pro-79 to Arg-87, Ala-124 to Pro-130, Leu-220 to Gly-225.	L0772: 1, L0373: 1, L0374: 1, L0765: 1, L0773: 1, L0561: 1, L0650: 1, L0651: 1, L0776: 1, L0606: 1, L0661: 1, L0629: 1, L0628: 1, L0527: 1, L0636: 1, L0542: 1, L0526: 1, L0783: 1, L0809: 1, S0052: 1, S0428: 1, H0683: 1, H0710: 1, H0187: 1, H0478: 1, L0609: 1, L0612: 1, L0780: 1, S0394: 1, L0485: 1, L0581: 1, L0361: 1, H0217: 1, S0242: 1, S0276: 1, S0042: 1, S0384: 1 and H0506: 1. AR096: 1, AR104: 1, AR060: 1, AR089: 1, AR055: 1, AR033: 1, AR039: 0, AR061: 0, AR053: 0, AR052: 0 H0081: 2, S0192: 2, H0717: 1 and S0420: 1.				193-220, 1-17, 139- 155
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[0056] The first column in Table 1 provides the gene number in the application corresponding to the clone identifier. The second column in Table 1 provides a unique "Clone ID NO:Z" for a cDNA clone related to each contig sequence disclosed in Table 1. This clone ID references the cDNA clone which contains at least the 5' most sequence of the assembled contig and at least a portion of SEQ ID NO:X was determined by directly sequencing the referenced clone. The reference clone may have more sequence than described in the sequence listing or the clone may have less. In the vast majority of cases, however, the clone is believed to encode a full-length polypeptide. In the case where a clone is not full-length, a full-length cDNA can be obtained by methods described elsewhere herein.

[0057] The third column in Table 1 provides a unique "Contig ID" identification for each contig sequence. The fourth column provides the "SEQ ID NO:" identifier for each of the contig polynucleotide sequences disclosed in Table 1. The fifth column, "ORF (From-To)", provides the location (i.e., nucleotide position numbers) within the polynucleotide sequence "SEQ ID NO:X" that delineate the preferred open reading frame (ORF) shown in the sequence listing and referenced in Table 1, column 6, as SEQ ID NO:Y. Where the nucleotide position number "To" is lower than the nucleotide position number "From", the preferred ORF is the reverse complement of the referenced polynucleotide sequence.

[0058] The sixth column in Table 1 provides the corresponding SEQ ID NO:Y for the polypeptide sequence encoded by the preferred ORF delineated in column 5. In one embodiment, the invention provides an amino acid sequence comprising, or alternatively consisting of, a polypeptide encoded by the portion of SEQ ID NO:X delineated by "ORF (From-To)". Also provided are polynucleotides encoding such amino acid sequences and the complementary strand thereto.

[0059] Column 7 in Table 1 lists residues comprising epitopes contained in the polypeptides encoded by the preferred ORF (SEQ ID NO:Y), as predicted using the algorithm of Jameson and Wolf, (1988) Comp. Appl. Biosci. 4:181-186. The Jameson-Wolf antigenic analysis was performed using the computer program PROTEAN (Version 3.11 for the Power Macintosh, DNASTAR, Inc., 1228 South Park Street Madison, WI). In specific embodiments, polypeptides of the invention comprise, or alternatively consist of, at least one, two, three, four, five or more of the predicted epitopes as described in Table

1. It will be appreciated that depending on the analytical criteria used to predict antigenic determinants, the exact address of the determinant may vary slightly.

[0060] Column 8 in Table 1 provides an expression profile and library code: count for each of the contig sequences (SEQ ID NO:X) disclosed in Table 1, which can routinely be combined with the information provided in Table 4 and used to determine the tissues, cells, and/or cell line libraries which predominantly express the polynucleotides of the invention. The first number in column 8 (preceding the colon), represents the tissue/cell source identifier code corresponding to the code and description provided in Table 4. For those identifier codes in which the first two letters are not "AR", the second number in column 8 (following the colon) represents the number of times a sequence corresponding to the reference polynucleotide sequence was identified in the tissue/cell source. Those tissue/cell source identifier codes in which the first two letters are "AR" designate information generated using DNA array technology. Utilizing this technology, cDNAs were amplified by PCR and then transferred, in duplicate, onto the array. Gene expression was assayed through hybridization of first strand cDNA probes to the DNA array. cDNA probes were generated from total RNA extracted from a variety of different tissues and cell lines. Probe synthesis was performed in the presence of  $^{33}\text{P}$  dCTP, using oligo(dT) to prime reverse transcription. After hybridization, high stringency washing conditions were employed to remove non-specific hybrids from the array. The remaining signal, emanating from each gene target, was measured using a Phosphorimager. Gene expression was reported as Phosphor Stimulating Luminescence (PSL) which reflects the level of phosphor signal generated from the probe hybridized to each of the gene targets represented on the array. A local background signal subtraction was performed before the total signal generated from each array was used to normalize gene expression between the different hybridizations. The value presented after "[array code]:" represents the mean of the duplicate values, following background subtraction and probe normalization. One of skill in the art could routinely use this information to identify normal and/or diseased tissue(s) which show a predominant expression pattern of the corresponding polynucleotide of the invention or to identify polynucleotides which show predominant and/or specific tissue and/or cell expression.

[0061] Column 9 in Table 1 provides a chromosomal map location for certain polynucleotides of the invention. Chromosomal location was determined by finding exact

matches to EST and cDNA sequences contained in the NCBI (National Center for Biotechnology Information) UniGene database. Each sequence in the UniGene database is assigned to a "cluster"; all of the ESTs, cDNAs, and STSs in a cluster are believed to be derived from a single gene. Chromosomal mapping data is often available for one or more sequence(s) in a UniGene cluster; this data (if consistent) is then applied to the cluster as a whole. Thus, it is possible to infer the chromosomal location of a new polynucleotide sequence by determining its identity with a mapped UniGene cluster.

[0062] A modified version of the computer program BLASTN (Altschul et al., J. Mol. Biol. 215:403-410 (1990); and Gish and States, Nat. Genet. 3:266-272 (1993)) was used to search the UniGene database for EST or cDNA sequences that contain exact or near-exact matches to a polynucleotide sequence of the invention (the 'Query'). A sequence from the UniGene database (the 'Subject') was said to be an exact match if it contained a segment of 50 nucleotides in length such that 48 of those nucleotides were in the same order as found in the Query sequence. If all of the matches that met this criteria were in the same UniGene cluster, and mapping data was available for this cluster, it is indicated in Table 1 under the heading "Cytologic Band". Where a cluster had been further localized to a distinct cytologic band, that band is disclosed; where no banding information was available, but the gene had been localized to a single chromosome, the chromosome is disclosed.

[0001] Once a presumptive chromosomal location was determined for a polynucleotide of the invention, an associated disease locus was identified by comparison with a database of diseases which have been experimentally associated with genetic loci. The database used was the Morbid Map, derived from OMIM™ (*supra*). If the putative chromosomal location of a polynucleotide of the invention (Query sequence) was associated with a disease in the Morbid Map database, an OMIM reference identification number was noted in column 10, Table 1, labelled "OMIM Disease Reference(s)". Table 5 is a key to the OMIM reference identification numbers (column 1), and provides a description of the associated disease in Column 2.

TABLE 2

Clone ID NO:Z	Contig ID:	SEQ ID NO:X	Analysis Method	PFam/NR Description	PFam/NR Accession Number	Score/ Percent Identity	NT From	NT To
HLTDP38	465120	14	blastx.2	(AF090930) PRO0478 [Homo sapiens]	gb AAF24045.1 AF09 0930 1	78%	117	7
HMAGF64	562775	43	blastx.2	AmpG-signal transducer [Escherichia coli]	emb CAA57653.1	98% 100% 91% 26%	482 3 280 358	1027 296 489 516
HLHSC60	638175	82	blastx.2	PRO2730.	sp AAG35553 AAG35 553	99%	351	722
H6ESA95	638229	83	blastx.2	CDNA FLJ11773 fis, clone HEMBA1005852.	sp BAB13907 BAB13 907	89%	322	783
HKMAA36	638339	84	blastx.2	(AF065388) tetraspan NET-1 [Homo sapiens]	gb AAC17119.1	81%	169	888
HISBE12	645267	86	blastx.2	(AL136944) hypothetical protein [Homo sapiens]	emb CAB66878.1	92%	15	1193
HEBAE43	645268	87	blastx	(AF161509) HSPC160 [Homo sapiens]	gb AAF29124.1 AF16 1509 1	100%	62	520
HAIDX85	672653	107	blastx.2	CDNA: FLJ23091 fis, clone LNG07220.	sp BAB15540 BAB15 540	96%	954	1802
HLJDK82	678819	111	blastx.2	GK001.	sp Q9NRG3 Q9NRG3	99%	238	1683
HMCFA76	684293	114	blastx.2	Hypothetical 13.0 kDa protein.	sp AAG29199 AAG29 199	41%	112	447
HTHCM28	684309	115	blastx.2	(AJ223830) ARE1 [Rattus norvegicus]	emb CAA11566.1	97%	7	1392
HCE1U38	685495	119	blastx.2	(AL136617) hypothetical protein [Homo sapiens]	emb CAB66552.1	99%	24	1067

HE8EQ09	695741	125	blastx.2	(AL049929) hypothetical protein [Homo sapiens]	emb CAB43210.1	99%	195	1184
HMEIU36	708053	135	blastx.2	TUMOR SUPPRESSOR (LUCA-1).	sp Q12794 Q12794	45%	153	533
HDFAB91	731889	173	blastx.2	(AF184227) ty [Drosophila melanogaster]	gb AAD55738.1 AF184227.1	53%	561	605
HSDJN50	740786	187	blastx.2	Cation efflux system protein CzcD. [Escherichia coli]	dbj BAA35414.1	28%	339	953
HSRFP52	745408	202	blastx.2	STRABISMUS.	sp O45030 O45030	36%	268	357
HE8NL29	750243	207	HMMER 1.8	PFAM: RNA recognition motif. (aka RRM, RBD, or RNP domain)	PF00076	100%	2348	1410
HHGBS74	753235	215	blastx.2	coded for by C. elegans cDNA yk34b1.5; coded for by C. elegans 1 1 coded for by C. elegans cDNA yk46e8.3; coded fo	gb AAB00699.1	48%	479	1276
HTAAT39	753289	216	blastx.2	CD84 [Homo sapiens]	gb AAD04232.1	34%	58	468
HMG8P83	759888	227	blastx.2	ZINC TRANSPORTER LIKE 2.	sp Q9JKN1 Q9JKN1	31%	58	327
HTEIA85	778081	264	blastx.2	hypothetical protein [Arabidopsis thaliana]	emb CAB10408.1	5.51	460	531
HSHBF13	778087	265	blastx	Similarity to Yeast E1-E2 ATPase YEL031W (SW:YED1_YEAST); cDNA 1 1 EMBL:D37288	emb CAB05683.1	51%	322	1449
						50%	1057	1554
						80%	1581	1658
						88%	1539	1589
						71%	263	325
						34%	408	884
						36%	179	409
						94%	162	1289
						45%	653	1582
						29%	23	373
						63%	66	344
						33%	309	683
						88%	9	110

HEXGI63	799513	337			comes from this gene; cDNA EST EMBL	sp BAB15071 BAB15071	71%	2424	2212
HSLDO85	801935	340	blastx.2		CDNA: FLJ21463 fis, clone COL04765.	sp Q9NZZ7 Q9NZZ7	82%	2510	2424
HLKDC74	812760	357	blastx.2		HSPC171.	gb AAD19694.1	78%	100	486
					(AF117297) TNF receptor superfamily activation- inducible protein [Homo sapiens]		96%	437	514
HWLIX39	815669	360	blastx.2		PUTATIVE FATTY ACID DESATURASE MLD.	sp O15121 O15121	95%	195	932
HMIAN37	828988	375	blastx		Similarity to Yeast MSP1 protein (TAT-binding homolog 4) (SW:MSP1_YEAST) [Caenorhabditis elegans]	gnl PID e1347884	64%	84	1025
HPFDI25	829071	376	blastx.2		CDNA FLJ20533 FIS, CLONE KAT10931.	sp Q9NWWY5 Q9NWWY5	79%	412	729
HFKEH50	833067	401	blastx.2		(AK000833) unnamed protein product [Homo sapiens]	dbj BAA91394.1	53%	742	1005
HELHM15	834810	404	blastx.2		CDNA FLJ12133 fis, clone MAMMA1000278.	sp BAB13983 BAB13983	23%	91	246
HTEJP13	834931	405	blastx.2		R27328 2.	sp O75295 O75295	38%	337	390
HBJNB08	836997	413	blastx.2		T10022.22.	sp Q9LM25 Q9LM25	25%	247	366
HTJMQ74	838145	423	blastx.2		(AK000996) unnamed protein product [Homo sapiens]	dbj BAA91458.1	98%	380	862
							98%	356	1603
							96%	198	377
							97%	834	394
							97%	1361	1068
							100%	1072	827
							93%	23	268
							34%	118	921
							100%	220	1044

HOHCE56	838619	424	blastx.2	(AF177203) cerebral cell adhesion molecule [Homo sapiens]	gb AAD51367.1 AF177203_1	98% 95% 100% 95%	517 335 273 1754	1761 541 344 1819
HSLEK65	839237	428	blastx.2	Arginine transport system protein ArtQ. [Escherichia coli]	dbj BAA35576.1	99%	17	730
HWGAF42	839272	429	blastx.2	(AJ245820) type I transmembrane receptor [Homo sapiens]	emb CAB57950.1	99% 94% 32% 35% 34% 31% 23%	8 336 11 89 110 83 12	367 650 298 382 271 271 287
HCRBB73	844034	450	blastx.2	CG8311 PROTEIN.	sp Q9V7R7 Q9V7R7	42%	466	1209
HWHHU11	844529	451	blastx.2	(AJ243649) putative metal transporter [Homo sapiens]	emb CAB59979.1	90% 93% 100%	85 597 569	624 1058 625
HLWAR77	847144	458	blastx.2	(AF119815) G-protein-coupled receptor [Homo sapiens]	gb AAD22047.1	99%	2	997
HCE2W33	847388	459	blastx.2	CDNA: FLJ21676 fis, clone COL09164.	sp BAB15113 BAB15113	84% 100%	915 772	1820 1080
HSOAC39	847431	460	blastx.2	predicted using GeneFinder; Similarity to Mouse FK506-binding protein (SW:FKB3_MOUSE) [Caenorhabditis elegans]	emb CAA92994.1	45%	170	511
HHEVC06	851355	490	blastx.2	pva1 [Plasmodium vivax]	emb CAA63219.1	49% 60%	560 804	784 893



HDPBI36	852845	499	blastx.2	hypothetical protein DKFZp564J0863.1 - human (fragment)	pir T17320 T17320	81% 92%	26 529	541 612
HCFNG65	853186	504	blastx.2	(AK001882) unnamed protein product [Homo sapiens]	dbj BAA91959.1	98%	30	908
HTOHA37	856923	530	blastx.2	(AF132951) CGI-17 protein [Homo sapiens]	gb AAD27726.1 AF132951_1	98%	9	881
HDPFH27	859875	597	blastx.2	APOPTOSIS-INDUCING FACTOR AIF	sp O95831 O95831	100%	95	1933
HAMGP34	861668	620	blastx.2	(AF065389) tetraspan NET-4 [Homo sapiens]	gb AAC17120.1	43%	17	736
HNECI74	862042	624	blastx.2	PRO1902	sp Q9UHT1 Q9UHT1	63%	248	394
HHFMA59	862567	633	blastx.2	(AF126024) stromal cell protein isoform [Homo sapiens]	gb AAF17233.1 AF126024_1	71%	249	749
HCE3X63	862807	636	blastx.2	Similar to D.melanogaster cadherin-related tumor suppressor [Homo sapiens]	dbj BAA13407.1	98% 96% 36%	314 243 226	2422 317 324
HCE2K01	862851	637	blastx.2	NEURAL MEMBRANE PROTEIN 35	sp O88407 O88407	89% 95%	103 599	603 1051
HBXGQ49	863848	652	blastx.2	(AK001692) unnamed protein product [Homo sapiens]	dbj BAA91840.1	48%	138	1565
HCECL08	863887	653	blastx.2	(AB025904) carbonic anhydrase 14 [Homo sapiens]	dbj BAA85002.1	99% 98%	207 699	704 992
HEMET46	863977	656	blastx.2	(AF060883) endomucin [Mus musculus]	gb AAD05208.1	37%	201	983
HCEVF41	866297	688	blastx.2	(AJ245937) glucose	emb CAB75702.1	95%	109	1071

					transporter [Homo sapiens]			90%		
HSSKF43	866388	691	blastx.2		(AB028127) mannosyltransferase [Homo sapiens]	dbj BAB18567.1		53	112	
HKATA81	867546	708	blastx		(AF161512) HSPC163 [Homo sapiens]	gb AAF29127.1 AF161512_1		55	1112	888
HDPMO69	868484	737	blastx		(AK002135) unnamed protein product [Homo sapiens]	dbj BAA92099.1		732	977	112
HFTCV95	869639	759	blastx.2		(AF151821) CGI-63 protein [Homo sapiens]	gb AAD34058.1 AF151821_1		51	467	
HTLEI29	870142	770	blastx.2		(AC005622) R30953_1 [Homo sapiens]	gb AAC34467.1		120	941	
HSRAV54	871264	797	blastx.2		PRO2550.	sp AAG35515 AAG35515		38	1156	
HHEOI72	871663	806	blastx		ZC513.5 gene product [Caenorhabditis elegans]	gb AAC48267.1		106	1239	
HDABD89	872527	833	blastx		(AF131781) Unknown [Homo sapiens]	gb AAD20044.1		1235	1351	1327
HHFJG66	873355	836	blastx.2		(AC006955) hypothetical protein [Arabidopsis thaliana]	gb AAD22340.1 AC006955_26		396	824	
HTTEL61	873679	838	blastx.2		(AL137200) hypothetical protein [Homo sapiens]	emb CAB69910.1		861	1118	
HHEVQ56	874064	841	blastx.2		(AC009322) Unknown protein [Arabidopsis]	gb AAD55479.1 AC009322_19		1083	1373	
								1401	1472	
								345	1514	
								1475	2494	
								1013	1774	
								804	920	
								364	762	
								313	624	
								203	298	

HSLJR04	874369	845	blastx.2	thaliana]	Cell division protein PtsK. [Escherichia coli]	dbj BAA35615.1	93% 95% 86% 100% 65% 100% 93% 96% 90% 45% 51% 40% 51% 25% 60% 27% 45% 44% 36% 27% 25% 34% 34% 36% 30% 29%	368 1787 864 595 1476 1031 1165 1887 1346 840 173 846 858 951 858 499 1022 971 1034 583 493 1019 670 493 849 855	18 1473 568 344 1147 867 1031 1789 1221 586 36 565 742 610 775 296 861 870 870 326 326 897 404 410 745 757
HFATS83	875269	863	blastx.2	put. Cyt repressor (aa 1- 341) [Escherichia coli]	emb CAA27318.1		94%	93	467
HWLMC49	875704	875	blastx.2	(AK000820) unnamed protein product [Homo]	dbj BAA91388.1		80%	176	550

HDABK73	876546	894	blastx.2	sapiens] zinc finger protein - Arabidopsis thaliana	pir T46147 T46147	32%	403	936
HWAHE17	879774	969	blastx.2	Small rec.	sp AAF43032 AAF43 032	26%	1207	1509
HWAEG32	879900	970	blastx	Hypothetical protein in pH-prsA intergenic region .[Escherichia coli]	dbj BAA36064.1	31%	1540	1662
HSDFD90	880039	976	blastx	Na+/H+ antiporter protein nhaB [Escherichia coli]	dbj BAA36033.1	46%	259	609
HHENP77	880178	979	blastx.2	Hypothetical 79.4 kDa protein.	sp CAC09450 CAC09 450	73%	612	656
HNFIB27	880254	982	blastx.2	B0034.3 gene product [Caenorhabditis elegans]	gb AAC38816.1	100%	3	368
HNSMB73	883132	1075	blastx.2	19.5 protein [Mus musculus]	gb AAA37113.1	97%	371	472
HEEAX26	883176	1080	blastx.2	(AX058090) unnamed protein product [Homo sapiens]	emb CAC22478.1	98%	67	723
HISBV17	883238	1083	blastx.2	transporter protein [Homo sapiens]	gb AAB47236.1	100%	3	44
H2CBE07	883335	1092	blastx.2	PEPTIDE/HISTIDINE TRANSPORTER.	sp O09014 O09014	88%	47	73
HTOAW80	883376	1097	blastx.2	putative [Caenorhabditis elegans]	gb AAA27934.1	100%	770	2893
HELFG05	883434	1102	blastx.2	(AK001914) unnamed protein product [Homo]	dbj BAA91975.1	26%	156	1004
						26%	1065	1529
						46%	7	375
						36%	368	592
						99%	281	1069
						100%	1067	1666
						42%	1566	1622
						46%	1	525
						87%	598	1314
						88%	305	592
						28%	363	1385
						98%	3587	2331

HSLN72	884818	1126	blastx.2	sapiens] probable membrane protein b0847 - Escherichia coli	pir G64822 G64822	89% 100%	67 2	435 67
HHFJI87	888142	1161	blastx.2	(AK000224) unnamed protein product [Homo sapiens]	dbj BAA91020.1	44%	306	923
HOUGB95	888279	1165	blastx.2	WUGSC:H_DJ0593H12.2 PROTEIN.	sp O95003 O95003	100%	73	795
HSLKC45	889371	1174	blastx.2	(AF093673) layilin [Cricketulus griseus]	gb AAC68695.1	84% 57%	124 1204	1239 1245
HSLFZ79	892016	1185	blastx.2	ORF_f447 [Escherichia coli]	gb AAA97114.1	100%	173	1513
HDQGN46	892018	1186	blastx.2	OX2 receptor precursor.	sp AAF98555 AAF98 555	58% 38%	400 265	1323 381
HPIAN49	892164	1188	blastx.2	probable membrane protein b0847 - Escherichia coli	pir G64822 G64822	100%	1	1251
HLQFF81	893535	1194	blastx.2	(AB015192) 50 kD glycoprotein (Rh50) [Mus musculus]	dbj BAA32441.1	55% 50%	3 695	374 730
HTPGG10	895024	1211	blastx.2	(AF072128) claudin-2 [Mus musculus]	gb AAC27079.1	83%	192	530
HKAHR43	895539	1214	blastx	(AF128113) prominin-like protein [Mus musculus]	gb AAD22488.1 AF12 8113 1	72%	1830	2606
HWHGQ46	895880	1219	blastx.2	CGI-78 PROTEIN.	sp Q9Y386 Q9Y386	100% 88% 76%	514 1161 1214	1161 1214 1264
HHPAZ12	896370	1225	blastx	RP140-upstream [Drosophila melanogaster]	gb AAD40352.2	32%	329	898
HPTVU91	896517	1227	blastx	(AB012692) CAC-1 [Homo sapiens]	dbj BAA87335.1	62% 39%	411 606	340 469

HETJW92	896874	1232	blastx.2	MAL protein [Homo sapiens]	gb AAA36196.1	40%	37	429
HTTBH18	897055	1235	blastx	one short region of weak similarity to S. cerevisiae protease A 1 1 [Caenorhabditis elegans]	gb AAC69037.1	50% 43% 43% 38%	1050 239 570 713	1295 307 638 790
HSLAS08	897262	1237	blastx.2	(AE000294) regulator of length of O-antigen component of lipopolysaccharide chains [Escherichia coli]	gb AAC75088.1	100%	16	975
HTLJA52	897328	1238	blastx	lysozyme (EC 3.2.1.17) - bare-faced crassow	pir JE0185 JE0185	64% 48%	199 415	402 582
HEBF134	897852	1240	blastx.2	(AF242523) hypothetical transmembrane protein SBBI53 [Homo sapiens]	gb AAF99603.1 AF24 2523_1	89%	1140	424
HHFJV91	898152	1250	blastx.2	(AK024046) unnamed protein product [Homo sapiens]	dbj BAB14797.1	91%	2	502
HABAD39	898401	1253	blastx	signal recognition particle receptor beta subunit [Mus musculus]	gb AAA69976.1	86%	90	848
HSUMA53	898943	1259	blastx.2	weak similarity to C. elegans predicted protein C33G8.2 [Caenorhabditis elegans]	gb AAB00721.1	36%	367	843
HHFNI70	899099	1260	blastx	glycoprotein CD44 [Rattus norvegicus]	gb AAA53532.1	30% 37%	177 408	422 551
HAHCK43	901386	1275	blastx.2	(AB028228) ZCF61 [Arabidopsis thaliana]	dbj BAA87953.1	30%	7	516

HHEPR52	904360	1299	blastx	(AF151020) HSPC186 [Homo sapiens]	gb AAF36106.1 AF15 1020.1	97%	146	568
HEOPR46	904471	1302	blastx.2	SERPENTINE RECEPTOR.	sp Q9QZT2 Q9QZT2	39%	62	547
HTLIT05	904861	1306	blastx	(AB029334) HrPET-1 [Halocynthia roretzi]	dbj BAA81907.1	41% 42%	171 672	704 998
HSKAS66	905017	1310	blastx	(AF004876) 54TmP [Homo sapiens]	gb AAD01206.1	66% 50%	277 160	648 231
HLTAG56	905871	1324	blastx	(AK000922) unnamed protein product [Homo sapiens]	dbj BAA91427.1	59% 68% 71% 34%	136 1228 910 1136	834 1560 1137 1231
HWLCJ12	906285	1330	blastx.2	ZZ:beta-Gal' IgG-binding fusion protein [unidentified cloning 1]	gb AAB00807.1	88%	2056	2235
HTHCK88	906306	1331	blastx	(AK001651) unnamed protein product [Homo sapiens]	dbj BAA91811.1	100% 99% 98%	457 1327 299	1272 1731 454
HELGY02	907105	1349	blastx.2	Similar to sulfatase [Caenorhabditis elegans]	gb AAA83618.1	50% 59%	354 2379	1655 2687
HIBCH43	910448	1398	blastx.2	(AK000373) unnamed protein product [Homo sapiens]	dbj BAA91121.1	98%	113	1225

[0002] Table 2 further characterizes certain encoded polypeptides of the invention, by providing the results of comparisons to protein and protein family databases. The first column provides a unique clone identifier, "Clone ID NO:", corresponding to a cDNA clone disclosed in Table 1. The second column provides the unique contig identifier, "Contig ID:" which allows correlation with the information in Table 1. The third column provides the sequence identifier, "SEQ ID NO:", for the contig polynucleotide sequences. The fourth column provides the analysis method by which the homology/identity disclosed in the Table was determined. The fifth column provides a description of the PFAM/NR hit identified by each analysis. Column six provides the accession number of the PFAM/NR hit disclosed in the fifth column. Column seven, score/percent identity, provides a quality score or the percent identity, of the hit disclosed in column five. Comparisons were made between polypeptides encoded by polynucleotides of the invention and a non-redundant protein database (herein referred to as "NR"), or a database of protein families (herein referred to as "PFAM"), as described below.

[0003] The NR database, which comprises the NBRF PIR database, the NCBI GenPept database, and the SIB SwissProt and TrEMBL databases, was made non-redundant using the computer program nrdb2 (Warren Gish, Washington University in Saint Louis). Each of the polynucleotides shown in Table 1, column 3 (e.g., SEQ ID NO:X or the 'Query' sequence) was used to search against the NR database. The computer program BLASTX was used to compare a 6-frame translation of the Query sequence to the NR database (for information about the BLASTX algorithm please see Altshul et al., J. Mol. Biol. 215:403-410 (1990); and Gish and States, Nat. Genet. 3:266-272 (1993). A description of the sequence that is most similar to the Query sequence (the highest scoring 'Subject') is shown in column five of Table 2 and the database accession number for that sequence is provided in column six. The highest scoring 'Subject' is reported in Table 2 if (a) the estimated probability that the match occurred by chance alone is less than  $1.0e-07$ , and (b) the match was not to a known repetitive element. BLASTX returns alignments of short polypeptide segments of the Query and Subject sequences which share a high degree of similarity; these segments are known as High-Scoring Segment Pairs or HSPs. Table 2 reports the degree of similarity between the Query and the Subject for each HSP as a percent identity in Column 7. The percent identity is determined by dividing the number of exact matches between the two aligned sequences in the HSP, dividing by the number



of Query amino acids in the HSP and multiplying by 100. The polynucleotides of SEQ ID NO:X which encode the polypeptide sequence that generates an HSP are delineated by columns 8 and 9 of Table 2.

[0004] The PFAM database, PFAM version 2.1, (Sonnhammer et al., Nucl. Acids Res., 26:320-322, 1998)) consists of a series of multiple sequence alignments; one alignment for each protein family. Each multiple sequence alignment is converted into a probability model called a Hidden Markov Model, or HMM, that represents the position-specific variation among the sequences that make up the multiple sequence alignment (see, e.g., Durbin et al., *Biological sequence analysis: probabilistic models of proteins and nucleic acids*, Cambridge University Press, 1998 for the theory of HMMs). The program HMMER version 1.8 (Sean Eddy, Washington University in Saint Louis) was used to compare the predicted protein sequence for each Query sequence (SEQ ID NO:Y in Table 1) to each of the HMMs derived from PFAM version 2.1. A HMM derived from PFAM version 2.1 was said to be a significant match to a polypeptide of the invention if the score returned by HMMER 1.8 was greater than 0.8 times the HMMER 1.8 score obtained with the most distantly related known member of that protein family. The description of the PFAM family which shares a significant match with a polypeptide of the invention is listed in column 5 of Table 2, and the database accession number of the PFAM hit is provided in column 6. Column 7 provides the score returned by HMMER version 1.8 for the alignment. Columns 8 and 9 delineate the polynucleotides of SEQ ID NO:X which encode the polypeptide sequence which show a significant match to a PFAM protein family.

[0005] As mentioned, columns 8 and 9 in Table 2, "NT From" and "NT To", delineate the polynucleotides of "SEQ ID NO:X" that encode a polypeptide having a significant match to the PFAM/NR database as disclosed in the fifth column. In one embodiment, the invention provides a protein comprising, or alternatively consisting of, a polypeptide encoded by the polynucleotides of SEQ ID NO:X delineated in columns 8 and 9 of Table 2. Also provided are polynucleotides encoding such proteins, and the complementary strand thereto.

[0006] The nucleotide sequence SEQ ID NO:X and the translated SEQ ID NO:Y are sufficiently accurate and otherwise suitable for a variety of uses well known in the art and described further below. For instance, the nucleotide sequences of SEQ ID NO:X are

useful for designing nucleic acid hybridization probes that will detect nucleic acid sequences contained in SEQ ID NO:X or the cDNA contained in Clone ID NO:Z. These probes will also hybridize to nucleic acid molecules in biological samples, thereby enabling immediate applications in chromosome mapping, linkage analysis, tissue identification and/or typing, and a variety of forensic and diagnostic methods of the invention. Similarly, polypeptides identified from SEQ ID NO:Y may be used to generate antibodies which bind specifically to these polypeptides, or fragments thereof, and/or to the polypeptides encoded by the cDNA clones identified in, for example, Table 1.

[0007] Nevertheless, DNA sequences generated by sequencing reactions can contain sequencing errors. The errors exist as misidentified nucleotides, or as insertions or deletions of nucleotides in the generated DNA sequence. The erroneously inserted or deleted nucleotides cause frame shifts in the reading frames of the predicted amino acid sequence. In these cases, the predicted amino acid sequence diverges from the actual amino acid sequence, even though the generated DNA sequence may be greater than 99.9% identical to the actual DNA sequence (for example, one base insertion or deletion in an open reading frame of over 1000 bases).

[0008] Accordingly, for those applications requiring precision in the nucleotide sequence or the amino acid sequence, the present invention provides not only the generated nucleotide sequence identified as SEQ ID NO:X, and a predicted translated amino acid sequence identified as SEQ ID NO:Y, but also a sample of plasmid DNA containing cDNA Clone ID NO:Z (deposited with the ATCC on March 24, 2000, and receiving ATCC designation numbers PTA-1559). The nucleotide sequence of each deposited clone can readily be determined by sequencing the deposited clone in accordance with known methods. Further, techniques known in the art can be used to verify the nucleotide sequences of SEQ ID NO:X.

[0009] The predicted amino acid sequence can then be verified from such deposits. Moreover, the amino acid sequence of the protein encoded by a particular clone can also be directly determined by peptide sequencing or by expressing the protein in a suitable host cell containing the deposited human cDNA, collecting the protein, and determining its sequence.

#### ***RACE Protocol For Recovery of Full-Length Genes***

[0010] Partial cDNA clones can be made full-length by utilizing the rapid amplification of cDNA ends (RACE) procedure described in Frohman, M.A., et al., Proc. Nat'l. Acad. Sci. USA, 85:8998-9002 (1988). A cDNA clone missing either the 5' or 3' end can be reconstructed to include the absent base pairs extending to the translational start or stop codon, respectively. In some cases, cDNAs are missing the start codon of translation, therefor. The following briefly describes a modification of this original 5' RACE procedure. Poly A<sup>+</sup> or total RNA is reverse transcribed with Superscript II (Gibco/BRL) and an antisense or complementary primer specific to the cDNA sequence. The primer is removed from the reaction with a Microcon Concentrator (Amicon). The first-strand cDNA is then tailed with dATP and terminal deoxynucleotide transferase (Gibco/BRL). Thus, an anchor sequence is produced which is needed for PCR amplification. The second strand is synthesized from the dA-tail in PCR buffer, Taq DNA polymerase (Perkin-Elmer Cetus), an oligo-dT primer containing three adjacent restriction sites (XhoI, SalI and ClaI) at the 5' end and a primer containing just these restriction sites. This double-stranded cDNA is PCR amplified for 40 cycles with the same primers as well as a nested cDNA-specific antisense primer. The PCR products are size-separated on an ethidium bromide-agarose gel and the region of gel containing cDNA products the predicted size of missing protein-coding DNA is removed. cDNA is purified from the agarose with the Magic PCR Prep kit (Promega), restriction digested with XhoI or SalI, and ligated to a plasmid such as pBluescript SKII (Stratagene) at XhoI and EcoRV sites. This DNA is transformed into bacteria and the plasmid clones sequenced to identify the correct protein-coding inserts. Correct 5' ends are confirmed by comparing this sequence with the putatively identified homologue and overlap with the partial cDNA clone. Similar methods known in the art and/or commercial kits are used to amplify and recover 3' ends.

[0011] Several quality-controlled kits are commercially available for purchase. Similar reagents and methods to those above are supplied in kit form from Gibco/BRL for both 5' and 3' RACE for recovery of full length genes. A second kit is available from Clontech which is a modification of a related technique, SLIC (single-stranded ligation to single-stranded cDNA), developed by Dumas et al., Nucleic Acids Res., 19:5227-32 (1991). The major differences in procedure are that the RNA is alkaline hydrolyzed after reverse transcription and RNA ligase is used to join a restriction site-containing anchor primer to

the first-strand cDNA. This obviates the necessity for the dA-tailing reaction which results in a polyT stretch that is difficult to sequence past.

[0012] An alternative to generating 5' or 3' cDNA from RNA is to use cDNA library double-stranded DNA. An asymmetric PCR-amplified antisense cDNA strand is synthesized with an antisense cDNA-specific primer and a plasmid-anchored primer. These primers are removed and a symmetric PCR reaction is performed with a nested cDNA-specific antisense primer and the plasmid-anchored primer.

***RNA Ligase Protocol For Generating The 5' or 3' End Sequences To Obtain Full Length Genes***

[0013] Once a gene of interest is identified, several methods are available for the identification of the 5' or 3' portions of the gene which may not be present in the original cDNA plasmid. These methods include, but are not limited to, filter probing, clone enrichment using specific probes and protocols similar and identical to 5' and 3' RACE. While the full length gene may be present in the library and can be identified by probing, a useful method for generating the 5' or 3' end is to use the existing sequence information from the original cDNA to generate the missing information. A method similar to 5' RACE is available for generating the missing 5' end of a desired full-length gene. (This method was published by Fromont-Racine et al., Nucleic Acids Res., 21(7):1683-1684 (1993)). Briefly, a specific RNA oligonucleotide is ligated to the 5' ends of a population of RNA presumably containing full-length gene RNA transcript and a primer set containing a primer specific to the ligated RNA oligonucleotide and a primer specific to a known sequence of the gene of interest, is used to PCR amplify the 5' portion of the desired full length gene which may then be sequenced and used to generate the full length gene. This method starts with total RNA isolated from the desired source, poly A RNA may be used but is not a prerequisite for this procedure. The RNA preparation may then be treated with phosphatase if necessary to eliminate 5' phosphate groups on degraded or damaged RNA which may interfere with the later RNA ligase step. The phosphatase if used is then inactivated and the RNA is treated with tobacco acid pyrophosphatase in order to remove the cap structure present at the 5' ends of messenger RNAs. This reaction leaves a 5' phosphate group at the 5' end of the cap cleaved RNA which can then be ligated to an RNA oligonucleotide using T4 RNA ligase. This modified RNA

preparation can then be used as a template for first strand cDNA synthesis using a gene specific oligonucleotide. The first strand synthesis reaction can then be used as a template for PCR amplification of the desired 5' end using a primer specific to the ligated RNA oligonucleotide and a primer specific to the known sequence of the gene of interest. The resultant product is then sequenced and analyzed to confirm that the 5' end sequence belongs to the relevant gene.

[0014] The present invention also relates to vectors or plasmids which include such DNA sequences, as well as the use of the DNA sequences. The material deposited with the ATCC (deposited with the ATCC on March 24, 2000, and receiving ATCC designation numbers PTA-1559) is a mixture of cDNA clones derived from a variety of human tissue and cloned in either a plasmid vector or a phage vector, as described, for example, in Table 1. These deposits are referred to as "the deposits" herein. The deposited material includes cDNA clones corresponding to SEQ ID NO:X described, for example, in Table 1 (Clone ID NO:Z). A clone which is isolatable from the ATCC Deposits by use of a sequence listed as SEQ ID NO:X, may include the entire coding region of a human gene or in other cases such clone may include a substantial portion of the coding region of a human gene. Furthermore, although the sequence listing may in some instances list only a portion of the DNA sequence in a clone included in the ATCC Deposits, it is well within the ability of one skilled in the art to sequence the DNA included in a clone contained in the ATCC Deposits by use of a sequence (or portion thereof) described in, for example Tables 1 or 2 by procedures hereinafter further described, and others apparent to those skilled in the art.

[0015] Also provided in Table 1 is the name of the vector which contains the cDNA clone. Each vector is routinely used in the art. The following additional information is provided for convenience.

[0016] Vectors Lambda Zap (U.S. Patent Nos. 5,128,256 and 5,286,636), Uni-Zap XR (U.S. Patent Nos. 5,128, 256 and 5,286,636), Zap Express (U.S. Patent Nos. 5,128,256 and 5,286,636), pBluescript (pBS) (Short, J. M. et al., *Nucleic Acids Res.* 16:7583-7600 (1988); Alting-Mees, M. A. and Short, J. M., *Nucleic Acids Res.* 17:9494 (1989)) and pBK (Alting-Mees, M. A. et al., *Strategies* 5:58-61 (1992)) are commercially available from Stratagene Cloning Systems, Inc., 11011 N. Torrey Pines Road, La Jolla, CA, 92037. pBS contains an ampicillin resistance gene and pBK contains a neomycin resistance gene.

Phagemid pBS may be excised from the Lambda Zap and Uni-Zap XR vectors, and phagemid pBK may be excised from the Zap Express vector. Both phagemids may be transformed into *E. coli* strain XL-1 Blue, also available from Stratagene.

[0017] Vectors pSport1, pCMVSPORT 1.0, pCMVSPORT 2.0 and pCMVSPORT 3.0, were obtained from Life Technologies, Inc., P. O. Box 6009, Gaithersburg, MD 20897. All Sport vectors contain an ampicillin resistance gene and may be transformed into *E. coli* strain DH10B, also available from Life Technologies. See, for instance, Gruber, C. E., et al., *Focus* 15:59- (1993). Vector lafmid BA (Bento Soares, Columbia University, New York, NY) contains an ampicillin resistance gene and can be transformed into *E. coli* strain XL-1 Blue. Vector pCR<sup>®</sup>2.1, which is available from Invitrogen, 1600 Faraday Avenue, Carlsbad, CA 92008, contains an ampicillin resistance gene and may be transformed into *E. coli* strain DH10B, available from Life Technologies. See, for instance, Clark, J. M., *Nuc. Acids Res.* 16:9677-9686 (1988) and Mead, D. et al., *Bio/Technology* 9: (1991).

[0018] The present invention also relates to the genes corresponding to SEQ ID NO:X, SEQ ID NO:Y, and/or the deposited clone (Clone ID NO:Z). The corresponding gene can be isolated in accordance with known methods using the sequence information disclosed herein. Such methods include preparing probes or primers from the disclosed sequence and identifying or amplifying the corresponding gene from appropriate sources of genomic material.

[0019] Also provided in the present invention are allelic variants, orthologs, and/or species homologs. Procedures known in the art can be used to obtain full-length genes, allelic variants, splice variants, full-length coding portions, orthologs, and/or species homologs of genes corresponding to SEQ ID NO:X or the complement thereof, polypeptides encoded by genes corresponding to SEQ ID NO:X or the complement thereof, and/or the cDNA contained in Clone ID NO:Z, using information from the sequences disclosed herein or the clones deposited with the ATCC. For example, allelic variants and/or species homologs may be isolated and identified by making suitable probes or primers from the sequences provided herein and screening a suitable nucleic acid source for allelic variants and/or the desired homologue.

[0020] The polypeptides of the invention can be prepared in any suitable manner. Such polypeptides include isolated naturally occurring polypeptides, recombinantly produced

polypeptides, synthetically produced polypeptides, or polypeptides produced by a combination of these methods. Means for preparing such polypeptides are well understood in the art.

[0021] The polypeptides may be in the form of the secreted protein, including the mature form, or may be a part of a larger protein, such as a fusion protein (see below). It is often advantageous to include an additional amino acid sequence which contains secretory or leader sequences, pro-sequences, sequences which aid in purification, such as multiple histidine residues, or an additional sequence for stability during recombinant production.

[0022] The polypeptides of the present invention are preferably provided in an isolated form, and preferably are substantially purified. A recombinantly produced version of a polypeptide, including the secreted polypeptide, can be substantially purified using techniques described herein or otherwise known in the art, such as, for example, by the one-step method described in Smith and Johnson, *Gene* 67:31-40 (1988). Polypeptides of the invention also can be purified from natural, synthetic or recombinant sources using techniques described herein or otherwise known in the art, such as, for example, antibodies of the invention raised against the polypeptides of the present invention in methods which are well known in the art.

[0023] The present invention provides a polynucleotide comprising, or alternatively consisting of, the nucleic acid sequence of SEQ ID NO:X, and/or the cDNA sequence contained in Clone ID NO:Z. The present invention also provides a polypeptide comprising, or alternatively, consisting of, the polypeptide sequence of SEQ ID NO:Y, a polypeptide encoded by SEQ ID NO:X or a complement thereof, and/or a polypeptide encoded by the cDNA contained in Clone ID NO:Z. Polynucleotides encoding a polypeptide comprising, or alternatively consisting of the polypeptide sequence of SEQ ID NO:Y, a polypeptide encoded by SEQ ID NO:X, and/or a polypeptide encoded by the cDNA contained in Clone ID NO:Z are also encompassed by the invention. The present invention further encompasses a polynucleotide comprising, or alternatively consisting of, the complement of the nucleic acid sequence of SEQ ID NO:X, a nucleic acid sequence encoding a polypeptide encoded by the complement of the nucleic acid sequence of SEQ ID NO:X, and/or the cDNA contained in Clone ID NO:Z.

[0024] Many polynucleotide sequences, such as EST sequences, are publicly available and accessible through sequence databases and may have been publicly available prior to conception of the present invention. Preferably, such related polynucleotides are specifically excluded from the scope of the present invention. Accordingly, for each contig sequence (SEQ ID NO:X) listed in the fourth column of Table 1, preferably excluded are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 and the final nucleotide minus 15 of SEQ ID NO:X, b is an integer of 15 to the final nucleotide of SEQ ID NO:X, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:X, and where b is greater than or equal to a + 14. More specifically, preferably excluded are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a and b are integers as defined in columns 4 and 5, respectively, of Table 3. In specific embodiments, the polynucleotides of the invention do not consist of at least one, two, three, four, five, ten, or more of the specific polynucleotide sequences referenced by the Genbank Accession No. as disclosed in column 6 of Table 3. In further embodiments, preferably excluded from the invention are the specific polynucleotide sequence(s) contained in the clones corresponding to at least one, two, three, four, five, ten, or more of the available material having the accession numbers identified in the sixth column of this Table. In no way is this listing meant to encompass all of the sequences which may be excluded by the general formula, it is just a representative example. All references available through these accessions are hereby incorporated by reference in their entirety.



TABLE 3

Clone ID NO: Z	SEQ ID NO: X	Contig ID:	EST Disclaimer Range of a	Range of b	Accession #'s
HCFNH88	11	413036	1 - 468	15 - 482	AA299504, BF508870, TI2637, AF199509, and AK026089.
HODDW3 7	12	456287	1 - 609	15 - 623	T83532, BF107206, and R09982.
HPMFI38	13	463734	1 - 542	15 - 556	HI2876, N58678, AL514125, AB026116, and AC012153.
HLTDP38	14	465120	1 - 980	15 - 994	BE907584, AW328071, AW341406, AW518651, BF000229, AI985460, AI679820, AI679244, BE349182, AW026569, AI913105, AW167521, AI433441, AI824296, AI652506, BE669569, BF224375, AV740400, BE222251, BE551363, AI681756, AW241259, AA352068, AV736248, AV744048, AV741074, AI866013, AI500135, AV740719, BE767739, BF436765, AA363430, AW168483, AW328070, AL119025, BF382482, AI696550, BE541237, AV714931, BE538259, BE867712, R08202, AW168479, BF794062, AA330772, AA078255, AL046746, BF805349, F27015, AA569065, AI061313, BE676915, AA878352, AV719443, AI921188, AI499503, AL157529, AA626829, AL119259, AA281928, AA745362, R79496, AL040462, BG164166, AI560070, BF741627, H21488, AV763469, AA551798, AV727584, N73187, AA878140, AA229444, BE674952, AA167744, BE139267, AA570344, BF844349, AW103383, H12383, BE145254, H15032, BF767878, BF773092, AW970020, AA669709, AU118852, BG106485, BF834522, AI719656, AK024825, AK000254, AC004552, AL034420, AL035587, AP000170, AP000055, AF019413, AL049540, AP001720, AC006121, AP000502, AC010326, AC011482, D89870, AF037222, L47234, AP000124, AC020916, AC002073, AC002538, AC009275, AP000330, AJ252080, AL158141, AL121825, U95742, AC018738, AC005913, AL159168, AL021918, AC005586, AC002091, AC005036, AJ010770, AC007216, AC022148, AL353748, AC004152, AC007917, AL138717, AC011465, AP001725, AC006530, AL033526, AP000509, AL009181, AC083871, AL022578, AC006539, AC004972, AL445985, AC005366, AL158218, AC007283, AC004212, AL022311, AL031668, U63721, U29895, AC005081, AC006449, AL022312, AC008897, Z54336, AC006947, AC002997, AC005039, AC004638, AC000070, AC008012, AL049753, AL356020, AL031665, AL022326, AL133246, AF027390, AC005828, AL132653, AL133445, AK026841, AC006433, AL096703, AC004841, AC022392, AB023049, AB000931, AL121989, AC009470, AC005052, AB003151, AL158040, AC015853, AC007225, AC012351, AC002115, AC002429, AL122015, Z93016, AL136300, AB014077, AL031311, AP001759, AC010458, AF220542, AC020955,

					AL033376, AL022165, AC011475, AL021877, AC008274, AC011480, AL109825, AL136135, AC005808, AL157838, AC004929, AL133243, AC004254, AC004209, AL109925, AF187725, AC009756, AL157359, AC008745, AC008033, AP001724, AC008753, AC005619, AC005484, AC005224, AC005544, AC011479, AL137139, AC003665, AL096791, AL020996, AC005911, AC005019, AC020910, AC008925, AC006483, Z84572, AC018448, AC010363, AP000279, AC006139, AC004141, AF245226, U62317, AC006511, AL049781, AC008543, AC011811, AJ239027, AF001549, AL138820, AL133448, AF190115, AP001711, AP001753, AC015846, AP001522, and AP001522.
HMHBT30	15	465711	1 - 417	15 - 431	BE868959, AV752876, BF594683, and R29204.
HFCBA57	16	466000	1 - 616	15 - 630	R56760, AW966299, AA339406, AI692199, R13164, AF150231, and AL121968.
HSRAL33	17	488966	1 - 956	15 - 970	BF980228, AV761652, AI769998, BF248482, BF570491, AA424644, AW268553, BF979946, BE877187, AW606938, AU130113, BF381651, AI985014, AA773189, BF696604, AA402448, AI214237, N79639, AW195871, AW197891, AA356925, AA293861, AW197782, AW195894, BE895108, BF572423, N54986, AA555193, AK022835, AF058718, AC004492, and X74635.
HSSMQ84	18	502907	1 - 401	15 - 415	AA296377, and AA378471.
HUKAB82	19	503441	1 - 446	15 - 460	R34441, BG256475, AW957006, AA300168, BE886285, AK027199, AC002394, and AC004381.
HDPPP46	20	506828	1 - 315	15 - 329	AW402168, BF726407, BE797379, H18753, BE782216, T77980, and BF756401.
HMTME11	21	506893	1 - 528	15 - 542	AW953715, AV755865, BF037206, BF978284, AA307934, BE739069, AA873152, F22832, AI095535, AA636042, BE252194, AI373026, AI311846, AI341706, BF675218, F32985, AW262015, AA947394, F32768, AV735940, AA654669, BE739920, AI581721, F27155, AV712832, AA551724, AV685728, AV736497, AI351541, DI1719, AW778836, T55216, T54839, AA483200, AI300770, AV712712, N87448, BF210823, F36606, BF434132, BF246076, BF830933, BF830813, AA367358, BE927682, AA095761, AI271368, F31064, AI432581, AA169517, F30843, BE827338, AA872144, AK024594, AF147354, AL121900, AC007739, AL035689, and Z55938.
HBMUK46	22	507310	1 - 417	15 - 431	R53427, and AC005495.
HETDT70	23	509728	1 - 585	15 - 599	AA156832, BE893951, AW957032, AV693732, T96213, AA299371, AA321353, AI810397, AU076717, E16580, AF035268, AF035269, and U37591.
HPWBL19	24	521848	1 - 576	15 - 590	N37051, N22691, AW977672, BF060705, AI740565, BF216881, BE218331, H82723, AW027246, AI354919, AA283799, AA658062, AA749441, N78633, BE467194, BE856126, BE798857, AW269276, AA810447, AA855098, N35468, BF062174, AI694134, AI985299, AI536933, AA281155, AV594363, AA603857, AA761068, AA826929, AI937825, AW977673, AW014079, N24534, BF332207, BG036203, BF515448, AF035397, AF003627, AC005189, and AF130357.

HMKAD8 5	25	523186	1 - 410	15 - 424	AI589211, AW025408, AI625632, CI5297, AA704635, AW028123, AI377558, and AA442923.
HE9NE12	26	524559	1 - 628	15 - 642	BE785096, BE179433, BE787964, BE784506, AW500409, BF085600, AU120753, BE179640, AW178302, AA334799, AL045511, BF571753, BF726397, U85056, and AK001145.
HE2AX73	27	525950	1 - 305	15 - 319	AW119011, AF009204, AB000275, AF119817, and AF119818.
HHGBV89	28	527491	1 - 362	15 - 376	AC016138.
HTTDC06	29	529791	1 - 468	15 - 482	AW249294, H46549, BF037340, and AB037814.
HFXXR35	30	532045	1 - 972	15 - 986	
HHSDL85	31	534414	1 - 657	15 - 671	R12427, and AB049848.
HTECA32	32	535036	1 - 462	15 - 476	
HTEHL79	33	535040	1 - 638	15 - 652	BG163316, AA326490, BF511719, AA234356, AW960948, BF911382, AA323651, AI290214, AC005839, X91879, and AC005920.
HPJBL54	34	536712	1 - 808	15 - 822	BE563266, BG112258, BF797934, BE272440, BF984016, BF326821, BF306396, BG113049, AL517732, BE315014, BF027560, BG257944, BE727070, R60599, BE563463, AA070383, BE206259, R20690, Z44632, AL079371, R21349, BE895144, BE926608, AA351700, AA218584, BE892486, AA973891, BE546412, BF038283, AA102133, AL530121, AA248752, AL525034, AL522857, BF927819, BF927818, and BF983582.
HSDDD20	35	538217	1 - 1028	15 - 1042	
HCUCG74	36	550208	1 - 861	15 - 875	BE781101, BE540200, AI972511, BE300952, AA464837, BG150212, AI681901, AW172458, AA099207, AW205564, AW408650, AW205714, AA450308, AA636047, AI656442, BF437116, BE466112, AW575656, AW962721, AW206882, AA099221, AI620473, AA369585, AW469939, AW136836, BE547752, AI638262, BF059133, AA236642, BE551958, AW086133, AI917742, AI623315, and AC005391.
HFIXK94	37	550992	1 - 399	15 - 413	BF366265, AF045448, AL163280, and AF064860.
HPJAV46	38	551777	1 - 403	15 - 417	BE274311, BF219801, BE531261, AW411242, BE531040, BE392456, AW377569, BF694069, AW377571, AV763995, BE263530, AW377537, AW377568, AV761917, AW377624, BF977274, AW852126, AV703358, AW852062, BE872120, BE164388, BE735905, AV711299, AV729227, BE780766, BE874878, AW393740, BF338865, BE615056, BE797162, BF691137, BF678996, BE901483, AA609994, BF311171, BE256747, BF793607, BE253983, AV714212, AL526398, AW852256, BF183197, BE736928, AV725124, BF700891, BG260744, BE743248, BF213101, BE250013, AW935221, BE299748, BE263146, BE300151, AW864172, AW410172, BF214422, BG171603, AW377567, BE873419, BF680148, BF312111, BE899308, AV713872, BG168000, BE741391, BF308822, BF205067, BF310727, BF203650, BF692699, AV708802, BG036583, BG248799, BE207590, BE207583, AI547302, BF304324, BF105254, BE272352, BE019519, BE732414, BE622069, AV751860, BF674867,

					BE300041, BE879936, BE544326, BF685977, BE314894, BE019478, AW852264, BE300351, BF237753, BE256192, BG033184, BF311434, BF686322, BE882480, BG121826, BE293606, AA399320, BF932221, BE395509, BE695712, BG105139, D30938, AV661326, BF686806, BE872697, BE273055, BG249490, BE270150, AV734330, BF683092, AV705448, BF692504, BF206919, AV703060, BE798386, BE882561, BE616007, BG026452, BE298381, BE262277, AW608096, BE070298, BE313176, BF979365, BE744054, BE812386, AW837967, AW732355, AW410757, BF106230, BE738991, BE812361, BF314692, BF932227, BF671336, BE812254, BF184921, BE261507, BF823639, AV711178, BE070300, BG167463, AV710849, BE931905, AV723237, BE812332, AV743501, AW956187, BE259759, BE784936, BF308955, BE900593, AW838045, AW838038, AW608103, AW608101, AW608107, AW608119, R80375, BE812322, BE019582, BE512851, AW608097, BE825686, AA430284, BE812328, AW852120, AW852072, BF203314, BE825718, AV706890, BE899494, AA007300, BF664876, AW837962, BF700537, BE763172, BE825692, BE694306, N28917, AW023727, BE936400, R71432, BE929628, AV702221, A1750601, AW753015, BF303816, AV729377, BE378338, AW837952, AW732592, AL533538, AW837965, BE311411, AA121281, AW837950, BF667711, AW372196, BF184919, AW372220, BF979547, T54945, AW580626, BE304857, AW391852, BF698766, BF665347, AV712080, AW952981, BF679450, AW373976, AW377490, BF671053, AA206647, BF700635, AA385623, AI908145, H85301, AV702882, BE263230, T82198, BF094304, BE394536, AA314228, BF383142, H25321, H25320, AW837966, BF203566, BF106427, BG119810, AA379542, BE612803, AW583199, BE732461, BF105082, BF970440, AV736809, AA332760, BF304301, BF316198, AL520449, BE091914, BE091982, AL039105, AX014088, D14696, and U34259.
HTTDL61	39	558312	1 - 315	15 - 329	AW241373, AI566355, R46114, H17077, AA939227, AW474575, AI242576, AL513923, T16523, R45283, F10525, AL133383, AP001726, AC087089, AC005670, AC005803, AP000696, AC004808, and AC002425.
HFPBN94	40	561612	1 - 1312	15 - 1326	AW195253, AW022456, AW022571, AV703012, AI652664, AV707458, AV728546, AW087595, AV703599, AW959521, AV702790, AI888208, AV705047, AW952410, AV705416, BE273626, AV705348, AW953797, AV656013, AV709247, AV651920, AV725633, AV702372, AV702266, AV707652, AV696791, AV709407, AV703494, AW959543, AW955723, AV658863, AW021930, BE966968, AW022168, AV728455, AV709587, AW962444, AW950443, AV726559, AV726088, AW020406, AW952403, AW952183, AW959806, AV656903, AW955613, AV661704, AW952751, AV696106, AV697196, AW956075, AV645936, AI473536, AV658084, AV692600, AV650315, AV659389, AW951263, AV697880, AV727613, AV726010, AV689111, AV728157, AV655280, AV660258, AV647789, AV708109, AW956474, AV659294, AV727787,

					<p>AV703146, AV692345, AV686060, AV725745, AW951239, AV686064, AV728148, AV660608, AV659322, AV726156, AV654908, AI473934, AV726590, AV698545, AV656478, AV684962, AV708893, AV709314, AV653353, AV708381, AV654070, AV660728, AV659536, AV691080, AW951281, Y08991, AF130055, Y11505, AX047063, AF217994, A91160, AI137563, S68736, AK024588, X66871, AF151036, AK027109, AK025113, U80919, AF080068, U75304, and AL162083.</p>
HYBBG69	41	562024	1 - 1205	15 - 1219	<p>BE220363, BF892160, BE672744, F23227, AI345156, AI334884, AI340644, AI335399, AI336654, BE138684, AV736474, AI334930, AI309443, AI345790, AI345562, AI307520, AI345026, AI307454, AI340664, AI310592, AI307542, AI345817, AI344808, AI345739, AI345674, AI312143, AI349637, AI312168, AI334920, AW071276, AI344779, AI312258, AI310927, AI307515, AI307578, AI336488, AI349955, AI349738, AW020095, AW075093, AI334941, BG111837, AI312432, AW071377, AI311159, AI312357, AI311435, AI312237, AI312408, AV749238, AI349601, AI307549, AI349213, AI335125, AI349937, AA861958, AI254134, AW148354, AI310925, AI340659, AI340604, BF764538, AI349805, NG7350, AI590048, AI307513, AI348981, AI344849, AV744830, AI343030, AI334889, AI273856, AI811192, AI312988, AW071380, AI336565, AI312325, AW071395, AV738918, AI288076, AI312963, AI758538, AA814582, AV736402, AI418436, AA826186, AI313352, AI310920, AI307503, AI311892, AA837290, AV744972, AI312959, AI307708, AW075084, AI336585, AI334913, AW327383, AI349266, AI334452, AI349787, AI310951, AI344938, AI241678, AI348969, AI340634, AI312146, AI312339, AI309431, AI340537, AI312165, AI345258, AI349628, AI349288, AI345310, AI282355, AI344260, AI340610, AI307459, AI343140, AI349971, AI289436, AV737782, AI345639, AI307507, AI348879, AI340642, AI340639, BG121774, AI334441, AI311604, AI343995, AI349220, AI340613, AI313325, AI307456, AI334943, AI311440, AI349960, AI312340, AI310930, AI309418, AI312333, AI312398, AI064830, AW071412, AI334908, AI312148, AI312252, AI049850, AI310945, AI334446, AI345149, AI340662, AI349000, AI312431, AI313350, AI312266, AA417129, AI312414, AI349020, AI312273, AI345251, AI377163, AI310941, AI251257, BG109553, AI470477, AI624976, AV760002, AC007565, Y09972, AL049300, AF175903, AJ242859, AL050024, AL157464, AK025860, AF088991, I77092, AL117394, AK000212, AF132205, AF175983, AL080163, L31396, AL080057, L31397, A70386, S56212, AK026870, U77351, AF213396, AL110228, E13052, Y07915, AF016394, AJ012288, AF130066, AB030200, L13297, AL050280, M69222, E06788, E06790, U49908, E06789, S71381, AI137276, AK026633, AF082526, AL110197, AK000083, AL137281, I03321, AF113699, AF119859, U53505, AF155827, AJ238617, AL117445, AK027173, AF090900, AB032264, AF246126, AK025889, X57961, L24896, X63410, AF038440, AF113690, X73361, AF151076, AB048994, AF082324, AF287051, AK024538, AL110171, AF118094, AL390154,</p>

HDPOJ05	42	562077	1 - 1140	15 - 1154	E07941, and AK026522.
HMAGF64	43	562775	1 - 1015	15 - 1029	BE903137, BE732613, AI269493, and AK024472.
HACCO38	44	563589	1 - 686	15 - 700	AA307960, BF691085, AA366364, AA366829, BF030298, AL046574, AA281830, AW402257, AL133061, AB023173, AX011607, and AF236061.
HRAAM31	45	567314	1 - 1232	15 - 1246	AC006230.
HWDA00	46	571474	1 - 799	15 - 813	BF064019, BF593236, and BF997680.
3					
HTHCV60	47	572607	1 - 471	15 - 485	BF837516.
HTLEV17	48	573110	1 - 415	15 - 429	R85015, H30718, BG251214, T09058, Z42050, AL042216, BF339690, T08045, AL042446, Z41928, H26862, BE765911, H50921, BE714890, AL042272, AI940226, and AB002373.
HCFAB91	49	573179	1 - 425	15 - 439	AI570416, AW510367, T82334, and AU142902.
HMWEE1	50	573751	1 - 687	15 - 701	BF105895, AA062924, BF843990, R75831, BF086558, T94511, BE931013, AI808807, AW020372, BE671627, AI379326, and AW051986.
HTLA185	51	574924	1 - 340	15 - 354	AL079482, AU125601, BE742829, AL530239, AW371246, AW367415, H49732, BF951592, BF772285, and D86966.
HHPGQ38	52	575287	1 - 648	15 - 662	BG165743, BF570243, BG166577, AA757672, R89840, N62892, N77803, AA873573, AW243945, BF769085, AI915081, AA297789, AI620992, AA503018, AA297006, AA598627, AA714073, AA862029, AI904944, AI185394, AA599532, BF766147, AA583386, AA102737, AW805539, AI816058, AI349130, BF791744, AW833901, BF884277, AI271762, AA780933, F08866, BF891621, AA809186, AA604147, AA302661, BF997771, AW961582, AA483606, AI049630, AA598605, AW880029, AA452325, AW821722, AI114534, AW821724, AI061303, AW264901, BE077105, H80989, AA570740, AW833047, BF447405, AI355246, AA568204, AA482792, AI310670, AA630854, AI570237, AI889579, BF883332, AA228778, N54538, AA642264, AW780190, AA486820, AA405549, AA635413, AL138299, T93109, BE787136, AW970064, AA326904, BF884894, BF858763, AA496268, R67701, BE149998, AI193417, AA482928, AV754399, AW821718, AA664126, BF922719, F35684, AA224807, AA486277, AA838091, AA847064, T83057, AA515939, AA410788, W96277, AW836439, R70883, AU147162, N91711, BF821072, BF857849, BF807722, AA578069, BG250286, AA501942, AV718585, AA365586, AA577824, AI310787, BG056362, AA642787, BF769229, AA020873, AW974363, AV722143, AV708029, AU120416, N64587, R34561, H65213, AA937809, AI306717, BF764105, AI054090, BE379437, BG113821, AA356376, BG150803, AW265688, AA378207, AA584207, AA630122, AI246061, AW301736, BF902460, BF815843, AI038358, AA229422, BF901391, BF345946, AW873207, AA339923, AV757738, BF918946, AA493797, T15890,

AV754716, BF920612, AA745351, AA669560, AA601237, AL284045, BG057207, AL207738, BE501670, BF941269, R70884, AF075374, AL243793, AA766414, A1978782, AW969743, AL524675, AW273360, AC004099, I34294, AC005516, AC008277, AC009305, AC027644, AL139120, Z93930, AP000255, AP000213, AP000135, AL031846, AC026776, AP000031, U22028, A47886, AF024533, AC005088, AL080243, AC004973, AL390997, AL049643, AL034549, AL139318, AL136296, AL023575, AC008278, AL121825, AF196969, M26434, U52111, AR060394, X64467, L78833, AP001712, AC005165, AL022165, AK022034, AL137330, AC007200, AL049733, Z94802, AC000353, AF111163, AC005559, AC007565, AF165141, AP000252, AC008848, AC009362, AC007269, AC005841, AP000212, AP000134, AP000030, AL031595, AL109965, AL031282, AL049699, AC006251, AC004824, AC010000, AC006101, AL109953, AC007358, AL138997, AC007277, AC011742, AC009244, AC003664, AF027390, AJ400877, Y11107, AC022407, AC008050, AC004383, Z68284, AL359846, AL121757, AL139100, AP000501, AP000065, AC004799, AF219991, AC020917, AC019210, AC008762, AF002223, AL078463, AL391119, AC078889, AF196972, AC006511, AC005053, AL031311, AL109824, AL109743, AC005527, AP000305, AL135959, AC025275, AC002303, AC006536, AL049828, AP000350, AC020906, AL135879, AL121790, U02051, AP000313, AL391259, AL080106, AL049872, AK025621, AC006482, AC007089, AL022320, L09706, AL353092, AF200923, AF217413, AC009007, AC002306, AF024534, AC005222, AC006272, AC005391, AF184110, AL360175, AL031321, AL133211, AC007545, AC004814, AL138735, AL109825, Z75887, AF222685, AC005024, AF038458, AL138740, AP000502, AP000099, AC006966, AC004584, AL023553, AC004804, AL133260, AC006486, AL033518, AL031276, AC004466, AC007021, AC005383, AL138726, AF130248, AL354674, AC011442, AC023158, AC020633, AC027319, AL035404, AC011700, AL121759, AC024563, AC003669, AC007688, AL096701, AC007172, AC008064, AL158141, AC006059, AC009481, AL135960, AJ131016, AL049780, AC010087, AC010789, AL354984, AC006952, AL133246, AL022316, AC012153, AL133257, AP000193, AC067969, X55503, AL137162, AC003072, AP000050, AL022302, Z81364, AC008433, AL023804, AC005227, AC005857, Z98036, AC006088, AL049636, AC034246, AC010205, AL031847, AC004854, AL050307, L78810, AC006581, AC011495, AC005625, AL118513, AC024571, AL035071, AC011510, AC001231, AL352984, AL161665, AC005058, AL121774, AP000047, AC006026, AP000117, AP001718, AP001717, AL031985, AF017104, AC002094, AL035422, U07807, AP000115, M87889, AC005180, AC005971, AL031123, AC020946, AC008114, AC007248, AL138976, Z95116, AC006329, U78027, AC005740, AP001711, AC007030, AC004089, AL024498, and AL121581.					
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HNGER82	53	576739	1 - 626	15 - 640	R16017, AA570454, R02443, T77361, R16118, AW973414, R06273, and T77056.
HBILU13	54	578925	1 - 539	15 - 553	AL353713.
HCFDC55	55	581501	1 - 474	15 - 488	AI683115, AW614790, AI949946, BE858872, BF939700, AI469900, AW172942, BE327191, AW451782, AI337875, AW239182, AW295271, AI363093, BE440149, AI471556, AI767259, AI683261, AW028130, BE349166, AI281604, AW027661, AI421188, AW473576, AW243195, AV650898, AI872021, AI376876, AI089774, AA749033, AA703436, N68539, AW235809, BF878349, AI750006, BF114982, AW976177, AV649714, AA526238, AA974484, AA455090, W37813, F09284, AW193169, AI493809, AI700797, Z41088, T92246, AW268135, AV662283, AV649952, T17498, F02060, AI916032, F04236, AV649786, AW976261, AL162084, AK000272, AL137741, and AL157494.
HFKCT25	56	586810	1 - 585	15 - 599	AA341121, and AA341124.
HAPOW05	57	587520	1 - 415	15 - 429	AA827188, BF511504, AW969122, AA504834, AW445204, R01230, BE909102, BG008470, BF951696, T93623, BF529606, AK026482, AB052145, and AF178935.
HCUFP05	58	589293	1 - 903	15 - 917	AL037337, BE250656, AL037347, BF690384, BF689438, AA738329, AW263173, AI401287, BF973585, BE646211, AI817738, AI361425, BF684855, AI500309, AA514406, AA781022, AI206043, AI039311, AW513395, AW510418, AA450076, AI582168, AI497642, AW027882, AI457954, AI734913, AI073893, AI493254, AW055011, AI688170, AW316771, AI344050, AW072287, AI304418, BF221940, AA535731, AI688548, AA399110, AA865470, BG056115, AI150686, N39612, AA843778, AI697688, AA503531, AW576502, AI554678, AI207587, AI381981, AI288532, AI342539, AI818835, AA782161, AI819112, AA844177, AA450132, AI675493, AI925355, AI302554, AA649895, AA826525, BF033350, AI279431, AA953657, AW044509, W60405, W81382, AW292965, BG055706, AI042277, AA758738, AI269455, AA594887, BE535387, AI419994, AA916356, AI694804, AI364286, AI351712, AA613382, AI990492, AA609491, AW406097, AA047617, AI864558, AA918532, AA282175, AA810568, AA633214, BE703250, AA626649, BE250680, AI559917, AW014338, AI918306, BF058804, AI351433, W46766, N93704, AI266616, AA366022, BE298972, BE675634, AA037691, AI382136, C00696, W35374, AA134788, T98249, BG106495, W21588, AI962666, BE273802, AA037690, BF206228, BF526713, AA531006, W23584, AW379851, BE541923, BE904747, BF530226, BF311708, BF683140, BE045182, AI630932, AI926182, BF312128, BE393551, AW118557, AW411235, BF205354, AA127565, BF128843, BE966499, AW411351, AV759970, AF043611, AF030291, AF001891, I48978, AR050959, AR068751, AF235093, Y11254, AF065135, A76335, I92592, S68736, A93016, AL110280, AF076633, AL389947, A91160, I89947, AR068753, AX030659, AF177401, I48979, I35495, AR072729, AC004942, AR072149, AK026744, AF184965, X83508, AR034821, AR037084, and S71381.



HB8CX53	59	597069	1 - 689	15 - 703	AU138655, AA081738, AW965288, T31616, H05397, T07153, AL035908, C14178, R18920, AA129192, AK002120, AL031117, and A80967.
HCENB31	60	597213	1 - 494	15 - 508	AW960962, Z43654, AA324303, BF955373, AW897155, AW897153, R76139, R80448, AX023742, AF074483, AJ012188, AF069755, AF099033, AF095784, AF056085, AX023740, AF058795, AJ011318, and AF074482.
H7TME55	61	597832	1 - 485	15 - 499	I33191, U22491, and E13005.
HDHMA4 9	62	600734	1 - 912	15 - 926	R35934, H29244, BE207202, R85125, R90888, H05353, AW966265, R14779, H51247, AA338672, R51725, AA488106, A1873131, A1500178, A1480182, F11386, BF530977, D29763, D64009, and D64010.
HBXBG68	63	610609	1 - 542	15 - 556	
HGBFC53	64	613240	1 - 459	15 - 473	BE549278, BE733028, BF684135, AL523005, BE799676, BF569653, BG025571, BE543724, AU122781, AU118901, BE546787, BE901627, BE619508, BG261003, BF125994, BE867036, BE514804, AU126661, T27149, AA453548, BE872645, BF982234, AA428039, BE732727, H06555, T08101, BF725406, A1372543, BF686296, BF812709, T74159, AA349657, A137103, F12624, W84358, BG011753, BE271430, BE271832, BF848808, AA464305, T33225, AA210971, BF081773, A1372544, A1567829, A1040013, N30951, BE265922, BE892906, AB033603, AK022488, AK021721, AF210052, AK001318, AF193844, and AF071316.
HPMCK47	65	613734	1 - 1190	15 - 1204	BF966080, W79900, R93661, BF768396, A1015952, R62914, BF435276, C17045, H13468, R23858, AW469629, BF769805, R64187, R63192, BF768469, BF807312, R79604, R64194, R28497, AA583351, A1342016, A1061587, AA330660, AA917802, N29380, A1220948, R81425, A1200655, R25950, A1128381, R79605, R64098, A1220985, BF431082, BF994016, AA729671, AA974341, R62915, BF768468, R81630, R64104, A1094352, AA001841, AP001748, AP001629, AC078847, AC017004, AC016628, AC002416, Z83848, AC010677, AL359313, AL008629, AC006249, AC008554, AC009505, and AF090920.
HAPNX53	66	613777	1 - 466	15 - 480	AV713823, AA482321, AV716627, AV713209, and A90848.
HOFAE02	67	614169	1 - 511	15 - 525	BE910195, BE783656, BE906341, BG178384, BE048049, BE973606, BE074234, N23506, AA995358, AA293374, N42420, BF970013, N29163, BF743351, BE782150, BF971148, A1924167, AV754940, N31382, A1300946, BG105075, BE896959, AV747543, AV702313, AW510702, AA507156, W38924, BE785316, BE890490, AW188107, H45202, N42404, H40733, A1983025, W95089, A1583243, BE880216, A1301966, W57541, A1015619, T31783, AW006794, BF674585, N33735, AA063083, AW630926, AW168796, BF679757, AA157599, BE858813, BE547758, BF670105, AW051432, R74310, AV742727, BG054826, BF699289, T31262, BE881479, BE879146, T19230, BE693583, A1125994, AW071976, A1360252, AW149790, AW877810, BF727414, W79708, BE714145, AW583802, BE764972, N33907, R23867, T35747, A1912804, Z42779, R22630, N42319,

					AI541287, BE122666, R39387, R28433, AA912616, AA846833, R33701, AW750247, AW297741, BF184398, AI090035, N28470, AI805679, AA702505, AI955820, BF196614, AA918990, AA769460, R67980, BF340421, AI128802, N94922, W95090, AA527383, F30122, AI418108, N33447, AA702099, AI308924, AI720299, H50365, BG109223, H42168, AA886635, AI025955, AI718979, AI857970, AW382456, AA948391, AI369901, AI056727, N24587, N76637, AI014666, AV707627, H70236, F37061, W04143, H50571, AI336552, AW014670, AW182324, AF092138, and AC006254.
HSLIQ83	68	614801	1 - 1099	15 - 1113	BF340747, BG260080, BE547694, AI392767, AI157156, W23048, BF513059, AA701938, AI817436, AI659366, BF948227, AU121610, H05668, AI682404, BG008771, R06611, BG222812, F09099, R49577, AW204732, H11394, Z41748, F02547, R06667, BF344354, R42148, BG026867, N53895, BE299243, A84110, AB028988, AK001996, AL137568, and AF057286.
HNTMD04	69	615231	1 - 613	15 - 627	W96405, H75441, T71263, H53046, and AC004849.
HRABY48	70	616154	1 - 366	15 - 380	AL049709.
HDDAA17	71	616652	1 - 740	15 - 754	AA044695, AA431595, AA044905, AU154369, AA431463, AW937978, AW875792, AW875597, AI745662, AA829389, AW170807, BE350003, AW875719, AI204384, AW665904, AI673728, AB046816, and AK001672.
HTRAC41	72	618715	1 - 735	15 - 749	T69560, and T69626.
HOSCV06	73	619875	1 - 1053	15 - 1067	AA146976, AA058965, AA147155, AI090186, AA099683, AA137215, AA099684, AI873263, AW173233, AI127920, AW082370, AA136188, AA279168, T94367, AI610013, T94721, AA092889, AW104403, AI797647, and AI133104.
HMCHS27	74	620219	1 - 506	15 - 520	AW965472, AA334472, AW631441, T82868, AW663438, AW005046, R94251, AA057050, H14927, BF693286, AA243549, BG251451, AV727485, H10895, BF836499, BE709741, N76939, AI061582, AV726610, AW994061, AW368027, BE779718, N56401, AV709174, AV728038, R06629, T83167, AA465291, BG236037, BF672374, AA249224, AA370905, BF360602, BE832703, AW869410, N52683, and AB029008.
HEMFC09	75	625334	1 - 657	15 - 671	BE877098, AW812330, BG035638, AU119507, D82299, BE771064, BE771065, AW888543, BF365190, BE006824, BE006769, BF514843, AB046813, AK021844, and AL096715.
HNTRJ16	76	625432	1 - 852	15 - 866	BF570656, BE969659, H05017, BF701826, T78233, T87257, AV757847, AA385525, AL038060, BE868803, BE568456, AK001241, and AC008179.
HKAJE09	77	625517	1 - 559	15 - 573	BF726594, BE779521, AI300952, AI352014, and AF085877.
HKMMS6 5	78	625566	1 - 431	15 - 445	AW381509, AW373459, AW373457, BE894289, BG032374, BF355684, AA085609, BE543790, AW381236, AL529067, BE736532, AA564706, AW673127, R17632, BG250040, BG177016, BE867041, BE797933, BE904858, BG163418, BF308249, BE278984, BE256249, BE783475, and BF306765.
HNHGE09	79	625622	1 - 504	15 - 518	

HTTCT34	80	626178	1 - 478	15 - 492	BE561581, AL525396, C75208, BE545814, AA311414, AL526582, AL533011, AW411262, BF085161, AL522581, BG104167, AL520536, AL521296, AL526904, AA334000, AW938624, AU119915, H06122, AW239479, W38676, T50005, AA297279, BF115394, AA302953, AW383613, AW383609, BE958011, AW192348, AW383535, AU120830, AL525440, BF376170, AK022780, AK000480, and AK021925.
HBIAS14	81	637714	1 - 1172	15 - 1186	AI991774, AI793266, BE327552, R74441, BE669500, BF110563, BF448329, BF444926, BE674147, AI807726, BE326537, AW770471, R86080, W04256, AI218667, BE707244, AI492388, AI241532, AI656102, BG012864, BF899452, BF448184, AA301750, AA634640, AI209012, BF331319, BF351759, and BE162660.
HLHSC60	82	638175	1 - 2017	15 - 2031	AW954150, BE271663, BE882577, BE782266, BG034024, BF663854, BE893189, BE906274, BF795047, AI174990, AI064968, BE385133, AI045811, AW410843, BF965937, BE622204, BE614963, BE622511, BF678467, BE271473, BE070862, AW959590, BE271421, BG250794, BE393250, BE746439, AA311362, BE772855, BE268978, W07340, BE019799, BE898464, AA308973, BG027995, AW803849, BE070813, BE562790, BE616540, AW139566, AA131594, AW410844, BG168299, BF031891, BF944978, AW803908, BG255067, AA308972, BF964638, AA180857, BE931993, BE207171, AW386119, AA621720, AI129355, AW192930, BG107431, BG112045, AI288447, AI138262, BE772804, R13316, BG180320, AW902886, AW675677, AA356436, AA373955, AA359864, AI002952, AA180960, AA757406, N78600, T08173, AA705625, H08897, BF964047, AA300048, R98996, AW265468, BF907879, AA249313, AA330694, BE694965, AW611507, BE070869, BF801643, AW148821, AA206756, AI702049, AI445699, BE018971, BF934783, F08693, BG169186, AA846014, BG059139, AW262572, AA147521, AA300049, BF592442, BE070861, BF808559, BF805874, AI121039, AA377004, AA094441, BE770962, AI202581, AA352076, AA172103, AA157620, BF990008, AW577279, AA248016, AW302196, AW391207, AA668421, AW351439, BE142172, BF541501, BF805841, AI886293, BG254398, BE708133, BF342268, AF132207, AC021075, AL355871, AL137654, AL035458, AL096776, AL132825, AL135844, Z85987, Z99716, AL121712, AL133448, AL445483, AC024148, AC069253, and AC069253.
H6ESA95	83	638229	1 - 1139	15 - 1153	AL529511, BE274975, BE727372, BF130709, AW167560, BF594230, AA098911, AW269481, AL529512, AW778988, AI093550, AU145793, AA643337, BF968948, BE302021, BE042613, AI689039, AI081116, BE833918, AW080976, BE045302, AI870146, AI907088, AI799998, AW338493, AA604822, BE796992, BE501153, AI589588, BE379185, BE932009, AA565586, AA579904, BE728414, AI687423, N92368, BE791438, BE746912, AU119457, AW995464, AW044476, BE901684, BE389989, BE018410, BF969275, BF686029, BE260612, AW886202, BF361026, BE386194, BG251377, BF306113, BE797307, BE279225, AW577017, BE897898, BF684743,

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HKMAA3 6					

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HLTFA02	85	638553	1 - 1005	15 - 1019	BE274374, BE299307, BG149449, AA149565, BG010137, BG010139, BG004980, AA169366, BE142714, BE812221, BF666656, BE812319, BE079717, BF751577, BF920681, BE939365, BF935231, BE909849, BE270211, BF927251, AB033092, and AC005539.
HISBE12	86	645267	1 - 1526	15 - 1540	AUI134630, AUI133566, AUI138245, AUI137852, BF574374, BE069938, BF107314, AV704855, AW963336, W23461, AW167802, AA563938, AI127313, AI539532, AA490669, AI874113, D82422, AA226521, AA226177, AI973210, AA386154, AW953092, W05488, AA347504, BF358693, C75173, T55946, AA358324, T52564, AA911206, BF106969, AA336586, AA347630, BF672805, AA452645, AW748957, R82314, T73366, BF369339, AW449322, AI546920, W21489, BF357935, AA366888, W76518, AA091839, BF574018, AA602826, AA362984, AI248642, AA058387, BE176207, BE835004, AA134033, T97372, R00339, R91853, AA004243, AA001805, T57235, T64521, BE090983, AA402341, AA099736, AX047362, AF226614, AF231121, AF215636, AK002038, AF215637, AF226613, AF231120, U76714, and AF147322.
HEBAE43	87	645268	1 - 610	15 - 624	AL521098, BE574602, BF673499, AL046863, BF316406, AW954218, BF977073,

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HSBBC07	88	655007	1 - 632	15 - 646	AW957695, BG167431, BF667170, BG029651, AW629846, AW958886, BE566320, BF794745, AA187579, BF027457, AI870419, BF694672, BF245466, BF688231, BF184831, BE252410, AA375691, BG024470, BF701292, BF212001, AW173013, BF218360, BF666624, BF678487, W31735, AA894530, BF245493, N78134, AI379833, BF211069, BF029426, BF209151, BF695644, AI339336, BE565388, AI336165, AA383311, BE565724, H04478, BE546835, BE302428, AA296522, AA282901, N40501, W38050, BF665566, AW615315, BE897499, BE858489, BF696213, BE568842, AI660120, AW630758, BF668121, BF207942, BF700860, BF239325, R80104, AI697018, R70837, BE793058, D20722, AI418065, BF694034, BE538634, AI961630, AA126483, BF243257, AA946777, BF699997, AA358261, T31842, AA329615, BF211844, AA463798, AI372055, N31210, AI280166, AI281293, AI191797, AA918864, AI018252, AI804228, AA381668, AA115687, AA864307, AA948109, AA938579, AA932915, AA460235, AI123356, AI124079, AW754363, AA939258, AI201697, AW627534, AI476152, AI284979, AA806449, BE789077, BF239695, AA181956, AA633371, AA740178, AC011890, AB034206, and AL110115.
HL2AE73	89	655590	1 - 354	15 - 368	AW138862.
HE20057	90	656211	1 - 513	15 - 527	AA587990, AI355697, AW955630, AA328879, AW954613, W01389, AW999957, AW440737, BE069761, AA476616, AB019602, and AB019494.
HEEAR13	91	656288	1 - 381	15 - 395	R01466, R08954, AA422070, AI204649, and AK000032.
HFIY13	92	656815	1 - 1074	15 - 1088	AL536911, AL527869, BF245609, BE270323, AA044869, BE893730, BE733057, BF242916, AL527868, AA306654, BE268826, BE875296, AU149506, BF747701,

HLWBH14	93	658066	1 - 528	15 - 542	BF747559, BF688822, BF743065, AU153925, BG253085, BF768009, BE882028, AK022744, AK023347, and AK000318.
					BE407162, AA188632, BF027256, BE253590, AI765126, BE408498, BF448597, BF057607, BF061666, AI167162, AI149274, AI122952, AI470212, AI740767, H96358, BF433481, AI240225, AI168425, BF979354, H13281, BF025838, W15511, R69088, AI240223, AA526820, R68610, R67855, R26131, AI760064, H87001, H92608, H95449, BF507644, AW951915, AA307149, BF439530, BF108898, BF475986, AK000044, and AL078599.
HATDW51	94	659283	1 - 866	15 - 880	BF060905, N40525, AI347028, AA017496, AW594216, AI040075, AI039421, AI458626, AA286737, AI241136, T76946, N26680, BE503575, AA287611, AW085657, AI039280, AA651849, BG057152, H81831, AA628122, AA806765, AW613553, AI445047, W95380, F13174, N46574, AI191989, AI191995, BF833339, AW662034, AV709642, AA659062, AI381740, BF745429, BF745855, AA620360, BF745430, BE816364, BE816359, AW795253, BE816357, BF743976, and AL135744.
HDPWQ69	95	659380	1 - 613	15 - 627	AA458518, and BF929403.
HNTBM67	96	659801	1 - 1057	15 - 1071	BE883765, AL134955, AA307472, AW960339, BF949791, M78461, AU130812, D56412, AW382561, AW382555, AW382532, AW382562, AW382559, AA223890, AI536122, AA826373, AW382553, AB014509, AB011159, D84346, and X80029.
HAIDY03	97	660532	1 - 525	15 - 539	AI061582, AV727485, BE709741, AV726610, AA334472, AW965472, H10895, AV728038, AV709174, T83167, BF836499, AA243549, AW368027, AW631441, AA487327, R94251, T82868, AA487348, AW663438, AW005046, BG251451, N76939, AW994061, H14927, AU148042, AA057050, BE779718, BF693286, AA249224, T87261, AI218622, AA506341, AB029008, and AK022433.
HDPDO12	98	661436	1 - 813	15 - 827	N30852, BF969528, BF025927, AA649075, BF315460, BF673758, BF726778, AA044232, AA425185, BF316493, BE260771, AI554723, BE047920, AI311315, AW029340, AI521451, AI805148, AI498798, AI087161, AA805252, AA405814, AI336402, BF680729, AI523953, AI275026, AI066488, AI863172, AA578642, AA417368, AA643942, AI024499, AA771979, AA889325, D63281, N30846, AW072029, AI032053, AW973064, AA101605, AA535747, AI299774, AA405813, W87448, AI191773, AA532648, H19832, AI268393, AW511845, AA745462, AA504479, AA722399, AV693812, BE777538, W87547, W31335, AI991341, AI004929, AW389246, BF247509, AA527348, AI033919, AW881217, AI343828, R12706, N92451, AA812821, AA991616, AW071205, AI092319, AA252648, AA055130, AI538413, AI014793, AA568733, AI000773, AA586676, AA228934, AA746136, AA872357, F32688, H19862, W20305, BE772781, AI037869, AA770508, AA476252, BF592563, F28098, BF060869, AA523469, N90683, H79071, AA094921, AA262932, R78468, H13151, AA937835, F19025, AA740856, BF591772, AW071810, AW607594, AA044371, AI870108, AW607628, BF438690, H04564.



					BE938328, AA055051, N41379, AW262852, AA504556, AA101604, AU121888, BE166026, BE855379, AW864878, R16450, AI859479, AW970118, AA515190, AA618357, AU147619, AI239641, N83997, H94808, AI032027, BE812158, BE166064, BF091989, AI738961, BF091992, AI084177, AW751676, BG099186, BF870262, AA210633, AW168939, AA299420, BG058939, BF765530, BE925027, C01735, BE171344, AV709813, AX014301, AK024167, and AX014305.
HAGBC45	99	661694	1 - 1524	15 - 1538	AI681538, AA399973, BE326518, BE504079, AA573265, AA401309, AI379315, AI215506, AW471197, AI377132, AI681742, AI332991, AW269403, AI377465, AA456746, AI685315, AI263428, N93369, AI374952, N32714, N23006, AA884641, AI218150, W24957, N95585, AA226426, AA773714, AI140445, H17820, AA253264, T86889, AW269001, T86888, AA226563, AI033243, AA041235, H17819, AA358475, R16622, R16564, W25386, AA883664, AA773710, R16637, AA040797, BF509086, AI927610, N89206, AI208762, AK027056, and AK026797.
HNTNT65	100	662513	1 - 466	15 - 480	AW390157, BE250250, AA984504, BF872063, BF376487, BF934232, BF923015, BF089975, AW294491, BG013986, BF733484, BE938102, BF719457, BE719459, BE935304, BE935305, AA385992, BE935592, BE907538, AI364918, BF334977, BF848924, AW296910, BF115534, AI831921, AI762572, BE764192, BG002605, BE764158, AX011645, and AF151799.
HTTAA50	101	665234	1 - 1156	15 - 1170	BF672232, BE537550, AV726990, AW450529, W32935, W35246, AA291282, AI240547, R16759, AV708580, AA053120, BF131640, T90562, AA436957, AW673770, BE348961, D79613, BF112026, D62474, BF795760, T90089, AI040785, AA496051, AI927287, AI935626, AI245410, AI151377, AA877741, BG152881, BF222016, R09207, AI913677, BE174769, AI027090, BE049632, AA991755, AA889277, BE327905, AI217584, BE222030, AI825249, AA765219, BF059450, BE645880, AA761487, AL050331, and AL023280.
HAGBX32	102	666416	1 - 625	15 - 639	H04905, W29095, H11833, AW875327, AF134640, AF100346, AC004125, and AJ272044.
HHMTMM1 8	103	666429	1 - 531	15 - 545	AA258921, BG026982, BF056154, T11903, AB037838, and AL050333.
HHFGR08	104	667779	1 - 1565	15 - 1579	BE748748, BE748510, BG255761, AW393085, BF240527, AW976133, AV707941, AI742057, BF102537, BF241358, BE748448, AI264355, AW875250, BF242245, BE748211, BF243467, AW875242, BF242831, BF215321, AI435473, BF213944, BF213952, BF028653, BF243295, BF243838, BF214842, BF243749, AA676810, BF242687, BF242568, AI884446, BF031764, BF241173, BF215271, AW452347, BE043080, AI280708, AW152544, BF243754, AA284643, BF214962, R83315, AI687112, AI623742, BF215307, AW512889, AW594361, AA737033, N63887, BF242146, AI538659, BF239594, H60297, BG180852, R99166, BF214678, AA134487, BF215366,

					AW083596, H60298, H48469, AA290765, R50608, T23528, A1873862, N92031, R50519, AW875361, BF241309, and AA211082.
HHBEU19	105	668286	1 - 510	15 - 524	W00819, AW963996, A1949555, BF245063, AA377198, and AA249131.
HWBBB21	106	670586	1 - 699	15 - 713	AW468066, AW238267, BE618753, AW897644, R14231, AW897647, BE179313, BE963215, BF814967, AW872506, BE173335, BF912222, and AK000143.
HAIDX85	107	672653	1 - 2052	15 - 2066	AL534096, AL534095, BG259886, BF970703, BE304636, BE536920, AW973921, BE301321, AW386287, BF982614, BE818465, BE018698, BF314421, BE741216, BF726009, BE138864, BG116337, AW000899, AW630010, A1924067, AA114200, AA568911, H09030, AW613797, A1569625, W28817, A1218322, A1217373, AA256422, BE315044, BE742801, AA662710, A1338593, AV725885, W26670, H03838, BF374209, AA312912, H03839, BE810299, AA862597, BE810307, N46856, N39122, C16564, R18735, R11595, BF857926, BF920704, BF822773, AA147297, AA340634, BF954410, BE868860, BF949714, AA147186, A1444616, A1022477, T89971, A1444617, A1808006, and AK026744.
HMMAV0 6	108	675380	1 - 629	15 - 643	AU135561, AV752385, BG060175, AW378313, AW378316, BF680418, AB002347, AK026998, AL049843, and AK026948.
HISAM25	109	677920	1 - 779	15 - 793	BF531021, R55610, AA179088, AU132929, F07005, BF725066, A1143877, BF693602, AK023273, AX047351, AB040930, AC024167, and D45913.
HRDX93	110	678316	1 - 712	15 - 726	AC006262, AC024698, AC024698, AC022273, AC023349, AC023349, and AC023349.
HLJDK82	111	678819	1 - 3245	15 - 3259	AL521457, A1051591, AL521456, BG028004, AV661958, BF981848, BG257469, BE560747, BF037795, BG261369, BF510976, BF791665, AW378643, AL134642, BE613309, AW960340, A1692896, A1952060, BF677984, BF349860, BF432744, BF676148, H93052, AA156070, W85861, BE072769, BE004809, BF830574, AA195128, AW401953, BF107422, AW272711, AA452951, BE858150, BE644932, AA307793, AA304943, AA773575, BF693391, A1936207, AA773916, BF132474, AW295959, BF834093, A1373149, AA182021, AA055577, BE315444, AW104431, AA767726, AV749526, A1215110, A1124008, AA186538, AW152132, AA037776, A1972932, AW468710, A1752572, AV724037, A1983223, N73564, N40159, A1002310, AA677490, R93506, AW168300, AW753567, BF349968, A1214625, AW268724, BF086970, AA306855, A1752573, A1074572, AW272230, AW977732, AA001953, BF130159, AA165681, AA004671, AW662398, AA182938, AA643741, AA580108, AA155986, AW386169, A1082391, Z44330, AA121127, A1214614, AA635553, BF246170, AA122425, AA773509, BE612719, AW083935, AV696709, A1979176, AA452813, A1435966, AW118902, AA620795, AL119024, AA613564, AA382161, AA758804, BF744099, AL121332, A1783502, AW969082, AW300568, A1086188, A1340942, BF000775, BE893817, AA827249, BF701522, T40456, AV748242, BF332048, AA620891,

						AW419327, T10382, BE162170, AA935555, BE708940, AI052475, AI470840, AW379031, AA195021, R09456, AW601974, AV747643, AW373197, AA001147, AW021736, BG002410, AA095034, AV681876, N57895, AI140739, AW515540, R09455, F05504, BE173039, AA676368, BE165820, AA169421, BE925935, AA352526, BE931730, AA628139, AI918650, AW835274, AI118829, BE708119, T40131, AV694828, AA307469, AA639473, AA909550, R93507, AW505311, R05284, T39176, T96058, D19735, BE881134, AI247324, AI784293, H93918, BE173078, BE814408, BF748924, AI032098, Z41685, R09454, BF890807, BE315206, AA337038, AI143688, BG115143, AA861575, BF818357, AW363634, BF377200, AW794051, AW362035, BF814980, AI248845, AA934532, BF082029, BE815786, AA932719, AW813872, BE165826, BE925596, BE082831, BE082832, BG254139, BF314301, AF226054, AC015651, and AF113221.
HCFMJ37	112	682668	1 - 592	15 - 606		R52491, H17763, AI038768, BF691687, AV717005, AV734854, AV728273, AI035739, BE748156, BF979733, AU118684, BF575231, BE568917, AA084554, AV718330, AV726438, H16532, BF904068, AI750581, AI903894, BF033632, BG104800, BE738971, R21494, BF246715, BE785069, AV717056, Z41981, BF983256, R13337, AA322574, AA448043, T26420, AA461375, AI903843, AI792383, AF161445, AF212245, AK021683, and AF151047.
HMWAPI 7	113	682949	1 - 639	15 - 653		AA156614, AI082082, AI086841, AI147047, AI185792, BG032133, BG034866, AW964839, BE740466, AI685906, AA569397, AI191694, AI188677, AI189282, AI022346, AI527990, AI128015, BG164811, AI160462, BF689154, AA151425, BE300105, BE206572, AI129363, AI572655, AI190802, AI192597, AI421638, AI123915, AA588200, AA632395, AI189252, AI190346, AI093266, AA985507, AA877464, AI092471, AA931075, AA812308, AA988393, AI141184, BE349219, AI079428, AI093935, N27456, AA599284, AI459518, AA621601, AI888940, N35806, N90875, AI039753, AA126032, AA826851, BG165764, AW337130, AI093326, AW338528, N90134, BE789089, AI573072, AI978985, F36547, AI264288, AW083207, AI268392, BE221316, W02208, AI868334, AA857962, AW769494, AI874277, AW591194, AA156917, AW511453, AA574010, AI953460, AA485449, H99139, AW793090, AA485617, AW194542, AA480004, AA482529, AA453453, AA738323, BG121838, AI936581, AI146899, BE219045, AA074444, AA417875, AI272974, H06706, AI357984, AI049922, AA143143, F30191, AA143382, AI872526, AI925798, H93348, BF204611, T56729, AA470878, T83669, AA989134, W32004, BF822183, BG251677, AW051161, AI192266, AW339303, AA669703, AI873894, H95625, AW051188, AA151424, AI932563, AA991593, C00453, T84534, AW078974, AW206415, AA857972, BG117198, AI611003, T83833, BF001688, BF812028, BG165138, AW008736, BE672775, BF380144, AA658204, AA341518, AR060388, and AF058807.

HMCFA76	114	684293	1 - 560	15 - 574	<p>BF969528, BF315460, BF025927, BF673758, AA649075, BF726778, BE260771, BF680729, AA805252, BE047920, AI311315, AW029340, AI521451, AI805148, AA425185, AA643942, AI087161, AI336402, AA101605, AI554723, AI498798, BF316493, AI523953, AA405814, AI275026, N30852, AA578642, AI066488, AI863172, AA771979, AA417368, AI024499, AW973064, AA889325, AA504479, D63281, AI032053, N30846, AA527348, AW072029, AA535747, BF247509, AI299774, AI191773, AA044232, AA405813, W31335, W87547, W87448, AA532648, H19832, AA722399, AI268393, AW511845, BE777538, AV693812, AA745462, AA055130, AI991341, AI004929, H19862, AW071205, AA252648, R12706, AA586676, AW389246, AI033919, AW881217, AA812821, AI343828, N92451, AA991616, W20305, AA228934, AI092319, AI014793, AA568733, AI538413, AA746136, AI000773, AI037869, AA872357, AA476252, AA094921, F28098, F32688, BE772781, AA523469, AA770508, H79071, BF592563, AA937835, R78468, BF060869, N90683, AU121888, F19025, H04564, AA262932, AI870108, R16450, H13151, H94808, AA101604, BE938328, BF591772, AA740856, AW071810, AW607594, AA504556, AW607628, BF438690, AA055051, AW262852, AA618357, AW864878, BE166026, BE855379, N83997, AI859479, AW970118, AA515190, AI239641, AU147619, BE812158, AA210633, AI032027, AW168939, BE166064, BF091989, BF870262, AI738961, BF091992, AI084177, AW751676, AA299420, BG099186, BF765530, BG058939, BE925027, C01735, BE171344, AA373508, AV709813, AX014301, AK024167, and AX014305.</p>
HTHCM28	115	684309	1 - 1973	15 - 1987	<p>AI524312, AL522827, BG260938, AL516117, BE792575, AI922738, BE873250, BG180370, BF311244, BG121041, BG036096, AI742798, BG031508, AW473070, BG178428, BE621819, BE876480, AW965166, AL524313, AI521861, BG164176, BE207270, AU154596, AA156048, AW796242, AW605147, BE081689, AW608807, AI937084, AW385322, AU147492, AV716431, AU148219, BF197439, AW474818, AW071089, AW247207, BE301182, AW834827, BF997412, AI933092, BE220183, AW150166, BF698915, AW247815, AW129619, AA593405, AW439761, AW366702, BE167300, BF058546, AI191767, AU157014, AI827281, AA055259, AA082848, AW474734, AI274887, AW292560, AW292339, AI681022, AW937927, N71255, AA454912, AI754310, AA961126, AA454836, W01562, AA088679, AI050679, AI467791, N58730, BF851421, T30213, H79378, AA157459, N62405, BF754744, BE082261, AL138072, AA112191, AW105535, AW206734, AA055258, BE183938, AI187893, AI630182, Z40024, AU157710, AA759028, AA086241, BE835912, T81323, R01268, N72641, AA679367, T07142, BE061996, BF964279, H79267, H27407, AA972254, AA204677, BF986068, BF062635, BF798884, AA993340, AW237668, AW772066, AW900962, T81852, Z46058, AA557468, H28601, BE812021, BF353337, T32580, AI536616, AL044924, BF849656, R01382, BF212235, AI434054, BF743715, AW293484,</p>

					BE826143, AI002409, AL138073, AW939242, AW978464, BE928649, BF879084, BF357736, BF948796, AA044699, AI370000, BG231907, BF744744, BE093552, BE833989, BF922103, D20569, BF911516, BF820096, BG001523, AW389488, AA501359, BF746233, AL390171, AK001725, AP223830, AL031228, AB022537, AF100956, AF110520, AJ006026, and AC087217.
HHEDB45	116	685054	1 - 620	15 - 634	AZ07821, BF952987, BF155610, AA102259, AW379923, AA301458, BE925010, AW889669, BF772647, BE696816, BF733180, AU160796, BF762963, AK001719, AF152961, AL135744, AC007528, and AK024072.
HTACX15	117	685191	1 - 995	15 - 1009	BE883093, BE884483, BG027520, H10439, AW955523, R52785, AA281828, T79895, R67193, AV730640, D61521, AV730776, Z19358, AA305743, H21747, AW062518, AW501215, N53853, BE974133, BF577121, AL136501, AK025606, AK022978, and AF131775.
HFIZN55	118	685340	1 - 701	15 - 715	W86347, BF432058, AW008475, AA446825, AI491957, W86348, AC002064, and AK024715.
HCEIU38	119	685495	1 - 2418	15 - 2432	AL537630, BE379378, AW953381, BE745060, BE408034, BG250739, BE731485, AV707754, BE730630, BG114419, BE394329, BF035312, BF341487, BF220298, BF791852, BF219748, AW409633, BE273198, AW793675, AW409746, BE673022, BE141458, AW365221, BE273114, AI888252, BF960994, AW793608, BE336870, AI963081, AW365985, AI719352, AW628991, AI870998, AA526056, AA824646, N40215, AI037847, AI554890, AW365950, AI598219, AI830693, W90606, AW365925, AA227444, AA732821, AI800413, AI817298, AA025450, AI127436, BE729822, AW190798, AI675827, BF215308, AI335265, AW605015, BF308910, AI890641, AW149481, W90283, AW087384, AI281445, AI289868, AA127060, BF826466, AA993770, AI205967, AI674727, AA565110, AW408017, AW438640, AW071077, AA126671, AI086531, AW407623, W67695, AA676533, BE677211, AI763067, AA486290, AA622632, AI125937, AA705101, BF508182, AA127033, AA489311, AI582947, AW237626, AA025895, AA992888, AA314447, W68154, AA075942, AA025449, BF840544, AI799186, BG057888, AI298301, AW117849, R18337, BF379757, R48988, AA354778, R42383, BF759488, R35325, AA262924, F12691, AI971065, F27343, T74957, AW779410, BE247290, AI358844, AA907111, F09227, R49398, BE828133, BG012833, AA526002, R92809, AI290093, R43689, AA055120, BF933629, R35011, AA055119, T99344, AA148960, F10300, AA092883, AA367728, AA127831, AA011292, AA807291, Z38701, AI471094, AW874232, Z42505, BE139605, AI418711, AI363914, AA127837, AA010856, AA148959, F11573, and T99554.
HNFI36	120	685604	1 - 762	15 - 776	BF568200, BE900421, BF568961, AW291267, AI912687, AI568596, AW956329, AA725526, BE504463, AI298130, AI921203, AI367591, AI348687, AW295172, AI885246, AI521328, AW050798, AA456741, AW291380, BF438189, AA992499,

HSKZB03	121	686533	1 - 1774	15 - 1788	AA988237, R6384, R48228, R96498, AI695492, R68589, R45494, AI928657, BF476567, BF591706, AW024061, AA376740, BG012296, and D63758. BF038650, AW600316, BE875992, BG253891, AW731682, AW372313, BE878814, BF591262, BE880516, BE875882, AW601338, BE206056, AW601314, BE877211, AA704088, BE219547, AW068001, AA223294, AA463501, BE902880, W46285, BE547229, BE786476, AA825343, AW068149, AW068066, AA113396, BF984659, AI754129, AW166703, W46425, H97088, BF820322, AI400098, BF463533, AA463548, AA126474, AA373922, AW294872, AW601596, AA120990, AI906777, BE549833, AA506770, BE300315, W51857, AI650979, AA999931, AW673699, AW604817, BE875366, AI908075, AI908094, AA676408, AF098462, AF055460, AF035377, AB012664, AF031036, AF031035, AB030707, and AR091383. AL533776, BF238947, BF671575, BF307134, BE896826, BE615467, AA297354, AA451764, AA127134, AA451762, AW239455, H10448, BE296524, BE297034, BE299140, T78950, BE311846, BE299196, F06459, BE294911, BG251513, BE270310, BF791036, BG110633, BE792285, BF338838, BE880218, BF308716, AL513740, BF979464, BG121135, D31389, AA297420, BE266974, AA194682, AA296942, AA297421, BF725960, BF038786, BG030014, BE784543, AF169481, AR076172, and AF125533.
HNTMZ26	122	688935	1 - 402	15 - 416	H63787, AA348525, AW961852, AA317641, BG251796, AK026836, AP001714, AL138825, AP000104, AC009731, AC010605, and AC011248. N63401, N95690, T07930, R42490, F11129, R38167, Z38365, and AW896192. BE897106, BG109874, BE538275, AV721438, BF969051, AW249865, BE312617, AW968992, AI091273, BF530606, AV702380, AV717337, BF726753, BE079600, BE894114, AW958900, AA313317, BF432282, AV726680, AA854119, BG104855, AA479605, BF666506, AA528178, AI741720, AI949241, W37670, AI041810, AA427616, BF060652, AI678997, AI421428, AI376945, BE169352, AI682011, BF593666, AI018757, AW024459, BF665336, AI805755, BE865716, BF541044, BF212134, AA115177, AI088836, AA843850, AV723775, AW964454, AA397898, W55938, AA164656, AI817629, AA148013, BF697773, AI419386, BF196461, AW340310, AI031676, AW166105, AI653966, N41633, AA833840, AW513611, AA164657, W58241, AW057816, BF214591, AI220471, AA417296, W58242, AA576267, N29628, AI333667, AI446780, AA416560, AI040265, BF732377, AA947478, AW517173, AA255918, AW392222, AW003884, AI051395, AI304937, AI347635, AA988744, AW020149, AA772434, AW130885, BE709243, AA713478, AA903306, AI023956, AA470629, N54515, AA974783, AA393599, AA465651, AV726981, AI081927, H07998, AI033986, AV727708, BE827568, AI344527, AA437350, W37530, BF955268, AA584287, AI571215, AA459425, AI493440, N51885, N48016, N35368, AV725588, AI159809, AI573012,
HHENC76	123	689978	1 - 356	15 - 370	
HHSGJ30	124	691490	1 - 691	15 - 705	
HE8EQ09	125	695741	1 - 2105	15 - 2119	

AW951698, AI039904, AI028502, N41531, AA281406, AA554092, AA770637, AA574012, AI366997, N29516, N36022, N20818, N27425, W39255, AI092581, AA251015, AI366775, AI084384, AA147985, AI022504, BE243164, AV725899, AA313617, AI417192, AA928947, W42526, BF570757, AA773339, BF214373, AA902741, AI276064, AI344624, N63383, AI348399, BF185484, AI128976, N24900, AI022495, AW438835, W94541, N30124, R51426, AA846586, AI682889, AA976669, AI095352, AI567371, BF848965, W52608, AA652023, AI983274, AA605267, AA890442, AA903999, N30541, AA599849, AA131635, R79812, T74223, AI797520, R78826, AA504313, AV660751, R62705, R25326, BF431079, H96859, AA890540, BF246795, N35735, AI200275, AI625128, N57460, T33335, AA788773, AA255919, AV708922, AI564312, R51314, W15286, BE967755, AA825307, AA411697, AA878389, AA489232, R77590, AW370869, BE620202, AA417822, R79321, AI242587, AA084106, W27971, D51241, AA652014, F10105, BF058045, BE265002, AA844543, AA298831, AI275474, R17981, AI075460, AI439760, AI879862, AA854083, H56745, F12487, H10236, AV660547, BE707078, H59133, AA952967, R44801, H59176, AI034047, AI702447, AI750027, AI186656, H12551, N27239, H10190, AI689439, AI214761, AA298846, AA298119, N76218, BE707045, R34849, AI205633, H85240, AI963141, AI049929, Y17975, AF259074, A74463, A74460, A74462, X84990, I48978, AI049382, AK026494, AK027116, AI122050, AK026626, AK024992, AI080234, AF185614, J05277, AK000137, X80340, AI390179, AK000432, AF090943, AF119909, AI049283, AI080060, AI122110, AF116691, AI117649, A07647, AL359615, A18777, AF132205, E04233, AI117457, AI133016, AF116646, AK026528, I48979, AK025339, AK025435, AI137550, X96540, AK025099, M30514, AB025103, AX046842, AF090903, AK026597, AI117394, AK000486, I89947, U75932, AI110196, I17544, AF218023, AR079032, AK025484, AI133558, AI080146, AK026353, AF113699, AI080154, AK025350, AF242189, E02221, S54890, AI137648, U76419, AI359583, AK026762, AK025092, X57084, U83172, A90832, AI096751, X63574, AK026542, AF244915, AI133075, AK026927, A08910, AK000690, AK026506, AF175983, A08909, AF113677, A77033, A77035, AI050172, AI096744, AF176651, AF100931, AK026480, E03671, AK027082, AK000636, Z82022, AK024974, AI137529, AK025015, AK026434, AK000647, AI122123, AF115410, A18788, D83032, AB049892, A08908, AK026894, AR075041, Z72491, AI353957, A08913, AI359601, AF130087, S77771, AI050149, AI389935, A03736, AF227198, AX026824, AX026823, A58523, A58523, AI035458, X83544, AF119860, AI389947, AI133606, U91329, AK024588, AI133623, AF113691, AF130059, AF116631, I89931, AF116670, AK027113, AF119878, AF177336, AF232009, AB048954, Y09972, AK000310, AI110280, AR038854, I29004, X66417, AR087170, A08916, E05822, AI049430, L40363, AI122106, AB047878, A08912, D16301,				
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HJKSC77	126	698634	1 - 486	15 - 500	BF207871, BF672390, BF210595, BF667487, AW958198, BE879682, BE958210, BF213084, AV714149, BE781669, BE788855, BE904974, AL529245, AA165446, BF694328, AA167433, AA446795, BE567812, AV696408, AV721198, AA167074, BE566185, BE886046, BF574268, BF218193, BF212797, BF132353, BE565691, AV692206, BF211500, BE613870, BF690906, BF668915, BF217003, BF208449, BE565391, BE567899, BF241795, BF217280, BG170232, BE567085, AA292252, BF211073, BG170146, BF103549, BF574941, N36033, BF698746, BF247359, BE926436, BF244908, BE565626, BF184621, BF029660, BF239234, BF029339, BF530881, AW604559, BF754702, AL750420, BF672085, BE567889, AV728059, AV729106, BE865963, BF239697, AW630584, BF693944, BE865942, BF696659, BF677397, BF669008, BF217310, BF217631, AA334848, AA079814, AA344673, BF244900, R31063, N75132, BF208918, BF215923, N40739, BF086448, AA166930, BE614475, W37976, BF240004, AA173470, BF028978, AW392722, AA329536, AA005078, BF027765, AA253190, AA460569, BF738903, BF208304, R58189, BF851236, AA377054, BE567327, W21391, BF993950, AW978143, BF849551, W47186, BF208334, BF208981, BF245946, AW960560, BF851329, BF216171, BF696911, AA909011, BF695321, AI435845, BF002030, AW510857, AI435369, AA304600, AW466951, AI123581, AI379585, BE565284, BE184246, AI379067, W37757, BE147734, AI305828, and AF220193.
HDABD32	127	699216	1 - 459	15 - 473	BE900337, BE903374, BE900986, AA282606, BF814200, and AK023151.
HWACC64	128	702658	1 - 758	15 - 772	
HMWIWI4 6	129	703503	1 - 1437	15 - 1451	AW964211, AV715723, AI133171, BF056982, BE256492, BG179131, BF112079, AI344307, BE278346, AI002167, AW575319, AI191619, AI762132, BE326361, AA279101, BE278358, AV716566, BF939523, AA548744, BE220654, AI338615,



HSDJ72	130	705030	1 - 634	15 - 648	<p>BE278191, AV752354, BF062335, BF061703, BE221006, AI337155, AI951768, AI631961, AW166120, AV573299, AV753159, AI742696, AI148802, AA258288, AW374032, BE218733, AI659040, AA769906, BF210670, AW243138, AI458943, AA947700, AA005338, AW968472, AI131522, BE467027, AI738782, AV739442, AW971767, AA928765, AI652006, AI540795, AA947646, AI301578, AA278837, AI419304, BE221285, AI073760, BF594676, AI914313, AA704914, AA915934, AI692947, W84709, AA677001, N47492, AA704721, AA287290, AA281053, AI783633, AA259130, AA459259, AI268517, AW664821, AI038536, AW612238, AA005432, AA908674, BF195829, AI129070, AA765582, AI424191, AI073770, AA307105, AA085232, AA255496, AA057872, AA252841, AA257027, W78855, H81798, H52414, AA352940, BF246477, AW406421, AA005431, AW205813, AI422501, H52413, AA057877, AI474305, AA081373, AA357781, AA081374, BE940541, AA005339, BE831041, AA720902, AA353070, AA769172, BE940706, AA357780, AA360882, AA085163, AA744140, AA481157, AA491288, AW805923, AW136823, AA481490, AW206306, BF437272, AA215824, AW858931, N47491, AI364893, T54544, T54585, H49180, BE787366, BG180435, R81120, BF986319, AA448931, AA452418, AW750022, AI239702, AW019901, AF151856, AF161495, AK025738, AB028628, AL050261, and AL132874.</p> <p>AA034056, AV700319, AV700909, AA033868, W94349, AA827892, AI874315, AI093264, AW080626, AW974315, AI090146, BE646652, AA658056, AW328176, AA135804, AA496546, AA524121, AA411710, AI559584, N26793, AW614867, N32251, AW138477, AU149509, BF206691, AA654002, W95497, AA777148, AI026045, AA974245, AA401911, W95584, AI948932, AW027666, AA765907, AA032272, AW204082, AA078960, AA834423, AI948922, AI248636, AI814115, AI214334, AA078862, AI203938, AW953690, AI921902, AA694134, AW004623, AA062740, AI040594, AA644260, BG106683, AI277243, AA343039, AA523862, BF914322, BF340988, AA366536, AW085486, AA406088, AW886791, AA513668, BF311155, AA247868, AA429963, D20862, AI000285, N35265, AI193674, AI890372, AW974314, BG106290, BF821760, BE408029, AW804773, AW934973, AW629655, AL080249, and AK022745.</p> <p>HI4987, HI2917, and AA035197.</p>
HSLGO34	131	706987	1 - 511	15 - 525	BE621745, BG164387, BF574824, AL045714, BF672339, AW968371, AI762887, BF589414, AA465412, AI927679, BE644646, N79630, AW131135, AI802356, N63954, AW052111, AA688055, BE049217, AI222346, AW131189, AA194362, AA455696, AA814052, AW151362, AA810129, AA417791, BF576898, AA417695, R30902, AA453295, BF693456, BE827797, BE714257, AI825696, BE714293, BE714247, BE714219, and AC004990.
HTOJF39	132	707266	1 - 1423	15 - 1437	

HPDEF35	133	707398	1 - 452	15 - 466	AA367210, BG032330, BF218504, BF247068, BE549484, BE738862, AV735508, AV737947, AV761865, AV758973, AW609720, BG119702, AA082767, BE884717, BE254128, BE409572, AL533384, BF602789, N88831, R23418, and AF125096.
HFIAW95	134	707878	1 - 558	15 - 572	AI209130, AI125408, AA688860, AI992321, AA047463, AI968499, AA411900, AA047397, AI241928, AA412094, AL133068, AK000033, and AL022328.
HMEIU36	135	708053	1 - 1062	15 - 1076	AI377407, AW973933, AI159464, AI591053, AI140794, AA085176, AA568840, AW059669, BE328386, AU142080, BF242387, AA085250, AL533715, AL525916, BE563312, AF036035, U90094, U73167, and AF040710.
HHEDM89	136	708177	1 - 699	15 - 713	AA599042, AL109865, and AL136133.
HKABW60	137	709347	1 - 766	15 - 780	AW410841, BE779375, BE892790, BF220111, BE251015, AV690387, BE780842, BE910652, AU129014, BE392799, BE777827, BE960806, AA306541, AA488585, BF950625, AA382085, BE295732, AL518759, BF037466, Z28940, AL524496, AL524495, AL518758, BE552293, BF000272, BE048523, AW797906, BE044002, AI990527, AW614747, AK001455, AJ006291, and AL163279.
HWLFB40	138	710542	1 - 615	15 - 629	AU139304, BE279067, AW842140, BG179422, BE391303, BE275569, BG252992, AW807017, BE409854, and AK002182.
HDTDW40	139	710974	1 - 397	15 - 411	AL528775, BE142925, BE142928, AW847734, AW847738, BG256636, AV650935, AW847732, BF935776, BE143004, AW749636, AI907806, AW752591, AW847801, AW847931, AK026928, AB037835, AC007404, and AK001513.
HEAAK34	140	711111	1 - 943	15 - 957	BE541855, AV716189, BF676470, BF906385, H16878, R56761, Z44727, H16267, BF931516, BF931560, AA663589, BF756845, T95749, AA834548, BF154552, H09671, AA809486, R91239, N50504, and AF161420.
HLWAH41	141	711706	1 - 881	15 - 895	R98276, BG011064, BG004978, T95945, W33061, AL136139, AC012558, AC000047, AL109935, AL136298, and AL363505.
HHSFI89	142	712570	1 - 765	15 - 779	BE010994, BF373745, BF327232, BF837452, BE086177, BF891340, BF989358, AI143465, BF877014, BF988288, BF592627, BF359465, and AW894924.
HSAVI33	143	714693	1 - 1561	15 - 1575	BG104258, BE798074, BG258223, BE887659, BE386155, BF125405, BE795610, BG029685, BG109393, BE675497, BF726957, N45533, AW469532, N28230, N25915, AW269727, AI089440, AI285952, AW748001, AA160294, AI377089, AW418733, AA937876, AI305151, AI220584, AW166442, AI582936, AA809358, AA314425, AV736878, AI339629, T16389, AV736541, AI221760, AA149870, AI288351, AW402220, AI400972, N42157, N33119, AA834035, H97523, R43925, H11078, AA160231, AA033775, AA115316, AV743890, AI373714, N48680, AA149815, AV748694, AW351448, H56181, R15111, AA033774, H56398, T08901, AW181998, BE827048, AA742663, AA830598, AW516481, AA749049, N56533, AI193709, BF987116, AA10460, AW086170, AI597612, BE465550, AI457804, AI214687, AI923937, H98583, AA975955, AW005216, AA092044, AW197792, AA889532, AA133171, AW629303,

					BE827051, AI057342, AW779081, AI581482, AW768976, BF294063, AA134603, R19274, AW304340, AW081512, AA811951, R45717, BE827057, BF758568, BE827054, T81759, BE827047, AI018596, BF358649, AA923709, AW043965, AW606319, and AF248648.
HMJAX17	144	715359	1 - 708	15 - 722	<p>BG261392, BF752467, AA194257, AW511409, AI912611, AI350842, AI497969, AI991928, BG109534, AI061156, AA744999, D53392, BF349631, AI680322, H11244, H07921, AI697635, T07017, AW367919, H11599, BF514837, AI610452, BF516523, AI909924, BF844285, AW151974, BG113493, AI866469, AL043168, AI872423, AI440238, AI866465, BG164558, AI539260, AI859991, AI860003, AI366900, BF525578, BG029667, AI433157, BG252929, AW151136, AI539771, AL037454, AI538850, BE897632, BF796402, AI537677, AI494201, AI500659, AI815232, AI801325, AI500523, AI582932, AI923989, AI284517, AI500706, BG166654, AI491776, AI445237, AW151138, AI670009, AI889189, AI521560, AI500662, AI284509, AW172723, AI440263, AI889168, AI927233, AI866573, AI633493, AI434256, AI805769, AI888661, AI284513, AI888118, AL036923, AI436429, AI889147, AI371228, AI440252, AI866786, AI804515, AI610557, AI690946, AI887499, AI805774, BG110517, AI815239, AI890507, AW074057, AI554821, AA480074, AI828583, BF338002, BG116926, BG261116, AI432030, AW858243, AI801152, BE878725, AW151132, AL042365, BF970652, AL045500, AI702073, AI648454, BE886728, BF766529, AI702065, AL119791, AI890907, AI698391, AL080011, BE885490, AI354998, AI473536, AL515195, AL046595, AI371251, AI866510, BE908744, BG257535, AL514579, AI923046, AI434242, BF795712, AI581033, BG170937, AI538885, AI242736, AI671642, AW151131, AL119399, BG255903, AL513913, BF811804, AI036705, BF037001, AI569637, AI440260, AL047100, BF814450, AI804505, AI648567, AI561170, AW022093, BF812961, BG178669, AI432644, AW089275, AI866472, AI469764, AI633125, BE883591, BF812438, AW152182, AI887775, AW075667, AI696829, AI590043, AI289791, AI926593, AI345010, AI818353, AI539800, AI582912, AV727264, AI687362, AI500714, AL042377, AI285439, BG033723, AI884318, AI355779, AI623736, AI491710, AI431307, AI918408, AL047422, AI815237, AI567971, AW169604, AI961589, AI431316, BE786043, AI828574, AI539781, AI539707, AI885949, AW089557, AI559957, AI285419, AI500061, AI521571, AI432666, BF982540, AI469775, AL515033, AI866581, AI619502, BG109553, AI567953, AI815150, AI446495, AI355277, AI867068, AI915291, AI225248, BE891834, BG029053, AI358701, AW050850, AI698352, BF812960, AL042544, AW118353, BG113712, AI536638, AL514511, AW192701, BE048061, AL513979, AL079741, AW149925, BF812963, AI433976, AA641818, AI560184, AI499463, BF680133, AI628850, AW198090, AI916419, AI610362, AW081036, AL042572, AL513743, AI440239, AL037030, BF727352, BF814527, AL514557, BE908107, BE877142,</p>

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HLJDZ45	145	717449	1 - 836	15 - 850	BF057682, BE551358, AI870472, BE348347, BE220620, N92013, AA481286, AA235512, D59403, W88874, AI167596, AU137366, R10048, R49500, D31111, D31113, D80100, AA236698, BF916715, AU123868, AL134153, AW392669, AL134132, AF155112, and

HAHBC57	146	718574	1 - 467	15 - 481	AK001994. AL518503, BE794141, BE246462, Z25363, BE246431, BE244577, BE393376, BE378295, BF355272, BF761359, and AC010271.
HLYDR60	147	718768	1 - 816	15 - 830	BE794685, BF685787, BE559983, BF685796, BE901125, BF307363, W73305, BG032061, BE873880, BE908758, BE884244, BE383845, BF797375, BF685559, BE728296, AW247236, AW131606, BE743302, AI339295, BG250395, BF678238, BG025457, BE728684, BF945968, BG027834, W51974, AW247847, AW966049, BE222587, AW027873, AV721989, AV721557, AW675648, W73040, W42520, AI817056, AW300280, AA121659, BF593810, AA365379, AA134508, AA524058, AA412645, AI026068, BF740089, AI480061, W16993, AA479840, BE904614, AI754885, BE834332, AI352460, BF693306, BE502119, AI363176, AA327589, BF108596, AA779872, AW673295, AA130538, AW025075, BF926042, AI022138, AA580472, AA379467, BE897396, AI300897, AI361310, AI338260, AI167748, AA535710, AI355596, BF196715, AI421227, AI797313, AA479718, AA536001, AA962145, AI085885, AI220550, AA373842, W42443, BE048034, AI335751, AA364113, AI312029, AA719318, AA412522, AV709718, W27857, AA719209, AA471180, AI309990, BF575516, AV706626, AI439502, AA215620, BG178778, W48677, BE699918, AW438416, AW015615, H38544, AA733051, AW963938, AA626066, AI648361, AA852416, AW770281, F35909, AA747411, AI818184, AA094707, AI263330, AW009191, AA215438, AA996110, AI241132, AI906614, BE832963, AW075282, BE170593, AF151888, and AL121938.
HCHMO09	148	719977	1 - 455	15 - 469	BE613615, AK025890, AK025426, and AB052134.
HADMD7 5	149	720237	1 - 473	15 - 487	H29006, AA533117, AW409667, AI341147, AI681129, AI433410, AI955317, BF058231, AW341107, AU154665, AI885266, AI027623, AI692534, BF061372, AI808909, AA099037, AA778251, AA923181, BF222564, AI276678, AW474492, AU160729, AI986154, AW135263, AW968197, AI420387, H09118, AA659407, AI347168, AA404602, AA905366, AA868124, AV722317, HI1272, BE300278, AA503263, AW137535, AA365338, AA402925, AA404732, AI675497, AA468344, AA405418, AF116574, AB014534, AK024064, and AF116573.
HKADW4 7	150	720269	1 - 684	15 - 698	AW502825, AL133572, and AB031230.
HFAUL30	151	721084	1 - 598	15 - 612	BF237693, BF237493, BE910607, AI432454, AW081785, AI436367, BF107426, AI191303, H27059, AI797479, AI188727, AI554783, AW970445, AA513753, AI090223, AI833007, AI886832, AA927473, BF764960, AA400632, F26406, AI148002, AA676886, AI142293, AA740345, AI815728, AW955899, AA536076, R07547, BE408046, BE276764, AA400317, BF944449, AI336523, BF025828, AA978356, AI017725, AA468753, AA639692, AV701120, BE615920, R07494, AI128273, AA724081, N41692, BF378717,

HKADD23	152	721126	1 - 632	15 - 646	AI879456, AI500369, AA252085, AA368986, AW368694, U75998, AW363134, BE695889, AA633704, AI815926, AA947905, AA199605, AA838338, AA707248, AA931186, AA670492, AA811357, AF202331, AW225341, AA542849, AA353038, BF978324, AF261688, and AC007400.
					BF315291, BE267287, BF315497, BE409386, BE727973, BE547473, BE254803, BE903798, AW958022, BF211629, AV742567, BF030620, BF129983, AW161511, BE886469, AA156149, BF242212, AA461616, BG167446, R20826, BE314226, BG253099, AI738546, T32235, AW993447, AA318338, R20384, AW957658, AV711296, BG110799, BG105200, BF509227, BF058787, Z45686, AA453377, AA328523, BF105125, R14248, AA075653, H10803, T30405, AW027919, AA482042, BE159472, BE159566, N55717, AA453972, AV712723, D58774, AI952258, AA453279, R60405, AA902471, BF208352, AW009749, BE904453, BE080502, AA461443, AW248974, AA236036, BF958143, BF229761, BG000176, BE699400, W58220, BF447253, AI088211, AV714273, AW768492, AF151826, AK025884, AF037601, and AL137283.
HE8MO09	153	721141	1 - 508	15 - 522	H23031, AA331581, BF366206, AA332819, AW938036, AL352979, AL356020, and AF045022.
HE8FL67	154	721418	1 - 579	15 - 593	BF795551, AV750730, AU127443, AW504749, BG119102, BE392473, BE540551, BG177251, BE018501, AU124097, BF589465, AI000771, AW613130, AA860505, AI637664, AA385917, AA884192, AA810287, AK022818, and AK022558.
HE00A49	155	722648	1 - 587	15 - 601	R15032, AL534035, and AL536176.
HMSJH49	156	722943	1 - 588	15 - 602	H85811, AW803024, R85057, BE260893, BF919286, BF897158, BF762192, BF762184, AA078293, BF910909, BF326115, BF379108, BF316947, BF935452, BF999044, BF814195, BF822246, BF904758, BF985732, BF919287, BF814194, BF897159, AW800319, AW800296, BF326439, N43800, AF208291, AF207702, AC073184, AF170301, AF273680, AF208292, AF170302, AF144573, and AF077659.
HARAX45	157	723491	1 - 1318	15 - 1332	AA057431, AW960708, N32151, AI125765, AA436463, N36198, AI082017, AA047763, AI806698, N24164, N24756, N22835, AI092759, AA318287, N31576, AI216856, AI082301, AA015986, AA054280, AA609296, W96296, AA436511, N72140, W00409, AA490273, AA490373, AX032551, AX032553, and AF071787.
HDTES50	158	724196	1 - 423	15 - 437	AW340512, AI807894, AW963850, BE885860, BG105462, AW082409, BF351584, AW054749, BF508549, BF508665, AW593064, BF365625, BF365626, R94399, AC008772, and AC025442.
HKGBC30	159	724352	1 - 661	15 - 675	BG035611, BG035535, BG166365, BG177010, BG178383, BE748164, BF031940, BF576496, BF667259, AW957446, BF970907, BF969397, BE737557, AA195158, BG029795, BF989378, BE737837, AA243408, BF672780, W42956, BE784012, D79834, D79740, BF742804, AA456700, AV688175, AV692424, AI337976, BG122569, AA456532, W78894, AA397777, AA242916, AA373082, H79467, R80629, BF516139,

HKIXO37	160	724432	1 - 486	15 - 500	D79679, BF131434, BE772150, AA304747, AW846336, AW375604, AI961425, AW959662, BF036652, AA160349, AA195029, AW375609, AW375470, AI826719, BG113642, AW751979, BF909045, W25422, AA159869, AI078789, BG251904, BF909852, BE645639, BF909048, BF908167, BE738443, H79246, AI279715, W47528, AA731913, AA723821, AI271712, W84668, AI274822, AI276459, and AA478098.
					AA258991, AA287202, AA148138, BF513439, H44277, BE873001, AA134264, AA459315, BE244273, AW294863, AW798207, AA278370, AI566279, AW968424, AA278138, AA769400, AW968318, AA742355, and AK027028.
HTLF139	161	724950	1 - 571	15 - 585	BF753854, AF053356, and AF174604.
HEQBJ81	162	725228	1 - 1417	15 - 1431	AL526015, BE902251, AL335577, BG119712, BF795162, AI972730, AI670995, BE385522, BE781482, BE867114, AI675678, AA399402, BF131361, AL525964, AI936663, AI805772, AW963715, AW005423, AI884407, AW083827, AW954601, BF196259, AI131935, AI933357, BE967468, AI277095, AW276015, AA447620, AI697985, AI912309, AA233630, AA069925, AA448020, AI192598, AA947274, BF511366, AI201913, AW675389, AA422152, AA448454, AU076532, AI199457, BE770857, AI222722, BE221191, AI933308, AI285314, AW299680, AI933319, AA009713, AI039091, AA694501, AA594398, AL535578, AA156783, BE549586, AA599751, H80269, AA070017, AW276004, C02912, AI498681, AI273260, BF448335, BF755788, AA938654, AA398362, AI564858, AW081385, H80365, BF433555, W23160, AI433696, AA635653, H09156, AW611985, AW512416, AI003286, AU153586, AI338001, AA350419, AA298504, BF885316, AA827591, AA809864, AA460451, R40317, AA297589, AA463393, AI261957, AI264460, AA297851, AA991627, AW952374, AI222589, AA809865, AA100151, AA338738, R44669, R13235, AA352547, BF476212, AA555202, AA325687, R41569, AW162831, AI940474, H09213, AI940457, AA082600, AI940491, BF932644, AI940480, AA302916, AI267918, AW952768, BF001386, AI473741, AW779351, C03526, R19419, AA009823, AI352026, AW301607, AI940485, AW379612, AA156852, BF340250, BF062888, AI189426, R36750, AW875742, R15147, BF922047, AW875677, AW875689, AA666086, AW162723, AA340305, AW387133, AA471272, AW373384, BF247476, AA091173, AI040390, AA678873, AA987875, AI923061, AI383804, AI360195, BG257545, BE011885, AI888956, AA437293, BE966404, BF796402, BG033906, AF040707, AF131207, AF040708, AC002481, Z66370, AK026603, AF254119, Z48796, A49118, AL137555, AK025549, AR008521, X69711, AL133093, AK027114, AL137539, AF192401, AF192402, and AF217967.
HAGES18	163	725655	1 - 654	15 - 668	BF966458, BF671990, BF692987, BF672825, BF126207, BF672860, BE278557, BF695073, BF576696, BF575966, BF672017, BF670459, BF576056, BF672797, BF672709, BF790889, BF671326, BF671275, BE971388, BF671415, BF671804,

					BF672665, BF574253, BF574870, BF574911, BF672284, BF673062, BF574843, BF695099, BF576341, BF671520, BF672453, BF672612, BF673018, BF694661, BF695215, BF670363, BF574724, BF575245, BF694964, BF575210, BF575621, BF575611, BF672159, BF574983, BF577006, BF670423, BF672647, BF575741, BF575626, BF670636, BF576075, BF790444, BF672379, BF672700, BF671585, BF672234, BF575200, BF575647, BF575471, BF672014, BF577028, BF693656, BF576598, BF694869, BF671617, BF671443, BF671115, BE018510, BF693272, BF576176, BF575630, BF672859, AL533461, BF790867, BF576262, BF671796, BF576923, BF670282, BF789957, BF574159, BF670829, BF575971, BF574636, BF670491, BE733819, BF670790, BF790838, BE969918, BF574822, BF207645, BF673114, BF670591, BF575253, AA196936, BF790495, BF208011, BF105281, BF576728, BF671430, BF126405, BE568532, BF671862, BF576326, BE866564, BF576606, BE564325, BF672465, BE967564, BF577181, BF673070, BF575476, BF576128, BF692821, BF670926, BE564826, BE732617, AL533199, BF790734, BF694889, BF692913, BF670649, BF789989, BE380150, T80234, BF694559, BF576530, BE568846, BF208829, BF791128, BF694585, BF695292, BF570751, BE866290, BF574539, BF693087, BF031510, BF695222, BF694370, BF576549, BF029400, BF575370, AA193133, BF694481, BF693258, BE537668, BF693691, BF693398, AV754040, BF825169, BF673925, CI5922, AV729281, BF574550, BF693473, W68781, BF574875, BF692911, BF693339, AV725869, AA100508, BF693401, BF671250, AA341035, AA111869, W27023, AA196311, BF791087, BF670819, AA192599, BF575764, BF574531, BF789918, BF692868, AA329773, BF695212, AA307342, BF790642, BF126139, BG109465, BF033622, BF034364, BE080952, BF130487, N55351, BF574105, BF671234, W19258, BE080786, AA088462, W68688, BE763621, BF693360, T71810, AA081840, AV702687, BF749150, AA303835, BF790177, W48742, BF952838, AW995369, AA131123, BF692768, N31239, T81226, BF965794, BG114654, N23613, AA371486, BF209625, AV747236, BF790651, BF699457, BE566199, BF671762, BF670941, BE259158, R96423, BE080807, AA076201, BG168165, C14200, H96142, BF671114, BE694253, N77358, BF725117, BE007854, AW995367, BF570468, BF693136, BE738965, BE379711, BF687772, BF576739, BF573934, BF245036, BF031142, BE873739, BF346570, AW897156, BF574980, W47036, AA021021, BF672048, BE868496, AF125103, AF077050, AF132048, AF177332, AB049853, AF087901, AR078522, AJ751385, AJ242963, AF051335, AJ251384, AB040463, AB015639, AF148538, AF132047, AF320999, AJ251383, AB020693, AB040462, AF148537, AJ242962, AF132046, AF132045, AJ242961, AR028524, and AA192565. BE222636, AI961104, BF436334, AI884733, AW246570, AW028772, AA888944, AI937479, BF436910, AI148511, R17483, AI986047, BE645600, BF958197, AI670139,
HHSGV20	164	725822	1 - 912	15 - 926	



						BF115307, AI651793, AW028535, AI972738, AI026845, AI797316, AA932228, AI818634, AI200838, AI767264, AI885011, AI651316, AW294043, AA351410, AI864915, AW956099, AW016371, D51213, R52574, AA304817, BG055746, AA325568, R42830, BE503876, AI871615, AA989336, AI637493, AA890222, AA351409, BF744896, BE22127, AA338951, R40721, R43297, R52526, T46991, BE622940, AA932798, BE504323, C14248, W52698, Z25285, BE670403, AW953345, R61467, AA365030, T46990, AA323378, C14217, AW304747, AI198190, AA75552, AI765583, AA716499, AA757803, AW952645, AI439830, AI491767, AI869586, AI336473, AI310488, AI368168, AI493465, AI343940, AI346860, AI189795, AB025186, and U51204.
HNECD53	165	727386	1 - 785	15 - 799		AL520253, BG113028, BE730840, AI692661, AI990927, AW576597, AI962731, AA151527, BF434287, BE551582, AA116092, BF063262, AA131002, BE466704, AI476250, AA626414, AL520254, BF223994, BF222968, AI638682, AI916526, BE048577, AA149442, AI686680, AI935593, AI201967, AA102766, AI963503, AW081527, AA286819, AA152283, AW273367, AI417694, AA150292, AI568034, AI624896, AI004236, AI446535, AI951797, AA625892, AA152451, AA101789, AA749172, AA116091, F24340, AI766979, BF445475, BE925564, AW958934, AI266738, AA384642, AA101790, AA853900, F35702, AW594388, AW137428, AI948855, AA897651, AI950455, BF917243, AW771964, BE163846, BE163852, BE163816, BE163659, AL533758, BE393501, AI089160, AA669642, AA488151, and AK022498.
HRAAO53	166	728064	1 - 549	15 - 563		BI80300, R14303, BG180366, Z45229, AV716542, AA827229, and AW977731.
HDPGD34	167	728098	1 - 850	15 - 864		AUI33208, BG255170, BF346276, BE396319, BE719458, BF326883, AW499756, AI929577, BF343013, AA331962, AW501305, BE072706, AW501302, BF365052, CI8077, BF335090, BF335074, BF335077, BF335088, BF335075, BF335078, BE072813, BF335091, BE926894, AV748888, BF910717, BF373903, AW996974, BF795573, BF476128, BF476077, BF575671, BF743862, BE245226, AK001718, AL080250, and AL162046.
HLYBU12	168	728763	1 - 757	15 - 771		AV711357, AA024565, AA454227, AW450093, AA426141, AL515137, W86795, BE894727, W87294, N92155, N46587, AA025318, W03644, N58008, BE893334, BF589668, AV726302, AA453645, AA345255, AW593927, BE672946, AA812729, AI915387, AL110420, AW664342, AA122344, AW770845, BE328340, AI743045, AI869288, AW771192, AI017204, R38111, AW974592, AA174165, BE768909, BF967003, F09335, BE788737, AW263305, H63885, BE622642, AA454228, BE088462, BF436458, AW304194, AA768532, AI138879, AI860270, AI374771, AW514315, AA811368, AW451628, AA972721, AA668674, AI627681, AI138747, AF113539, AK027258, AL136504, AF225981, and AF181121.
HEONV59	169	728861	1 - 963	15 - 977		
HCWHX5	170	728903	1 - 431	15 - 445		AC034291.

4	HE8DF23	171	730794	1 - 1567	15 - 1581	AI300116, BE296377, BG032463, AA908994, A1797802, AI383991, A1769393, AI377409, AI679192, W20029, AI954824, AW003222, AA423876, AI005307, AA885021, AA423838, AI590304, AA831018, AA877137, BF056260, N20924, AA830153, BF110964, AA889975, AA749009, AA261973, AD290190, AL042957, AI274997, AI761710, AI302355, AW104248, W58202, W58311, AI096394, AW015642, AA595487, BE258855, AA907686, H21773, AI632773, H21774, N91489, AA757789, AW242726, AA115494, AL042260, AI872868, AW576488, BE090133, and AI513865.
	HOECO33	172	730924	1 - 426	15 - 440	H46855, AA522937, BG168461, BG166970, BG034696, BG030159, BF971167, BF968107, AW327347, AI878995, BF382241, AW161124, AV744127, BF381820, BF029990, AA285085, W31692, BG031029, BG112033, BF030176, AA420715, AA305038, AA479559, AV735500, W51849, BF213193, BG113339, AA428036, AV710467, AA315675, BF793677, BF683278, BG163707, AL535052, BG028333, AA310999, BE909361, BF700007, BF977675, BE256879, AW583586, BF103812, BF183860, BG114558, BF541112, BF132139, BF184956, N98945, H49687, BF664599, BF827777, BF674463, AA121183, H50194, BF571367, BF032082, AI767547, H42256, AA298525, BE878076, BE047828, W79179, BE546966, BF213270, R96272, BF130738, AA136783, BF339338, H44205, T53397, BE879546, AA296778, AV747127, BF677752, AW083308, AA203752, AW405858, BF665269, AW081643, AW130434, AW131295, AW131303, AA479535, AI955122, AW301038, H51483, AA416837, AA082396, BE744389, T54405, BF977978, BF887309, BF887298, BF540976, BE789337, AI672869, AI422293, BE855465, AA633512, AI028278, AI351044, AI281194, AI560983, BF696827, BG149478, AA296829, BE788872, R50013, AA843796, BF084344, AI138248, AA477638, AI097413, BF381764, BE936616, C02084, R47812, AA516519, H49594, AA496596, AA563931, BF879230, R82586, AI056143, BF676451, N44055, R66527, AA297953, AW055043, BF879163, BF821422, C02981, BF218736, AA046382, AA910282, H45625, H45628, AA813514, BE220255, AI912595, AI301158, BF870347, R28130, BF477346, AI418360, BF883168, AA284914, BE826706, AA416688, AA705272, AA722082, F25958, AA055293, AI042242, AI348253, AI879494, W52111, BE826711, AI346869, AI298347, AI302881, BF700730, BF344686, T52195, BG026325, BF879420, AW799874, AI184088, AA420761, AW236255, AI814753, AA976549, W74425, BF247545, AA862704, AW438834, Z32877, AI073646, AA719502, BF792335, AA580072, AA402862, BE834154, AI718735, R66528, W04524, AV735518, F30163, AA428813, AI301336, AA496548, BF879226, AA992419, AI339223, H46769, AI866642, AA873692, AI394058, AI338648, AI264131, H50195, H42257, H44206, AX014159, and AF161372.
	HDFAB91	173	731889	1 - 1381	15 - 1395	BF529864, BE901775, AI589804, BE901042, AI199313, AI636756, BF061809, AI337174,

						AW003271, AL537767, AI363474, AI638061, BE855432, BF475260, AI653749, BE671333, BG056706, AI567434, AW235236, BF928391, R45347, BG055696, AA478099, R40001, BE551927, BF056286, AW138571, AI650862, AI202114, AI014634, AV725034, AW956241, AI263752, BF061875, T85446, AW071773, AA931156, R20686, AI220130, F11755, AA398006, T85350, T65494, Z43537, AW235434, R18850, BF949034, BF948468, BG056329, BF337317, BF530877, AA757698, BF957193, AI919390, BF963555, F09414, T65418, BE698921, BF528815, R72245, AA436146, T07423, BF957139, AW103587, AW966245, C20849, T08857, AI928679, AF177909, AB046649, AF190699, AF190991, AC008746, and AC008746.
HWLER32	174	732236	1 - 762	15 - 776		AV727577, AV727747, AV751004, BE466427, N72652, R11459, H93882, and H56112.
HNFJE71	175	732600	1 - 525	15 - 539		BG177946, AA355750, and AL162742.
HOUHA56	176	732902	1 - 660	15 - 674		R59681, BE739214, AV653666, F11197, AL119365, Y11395, AC007970, AI295233, and AI131111.
HMSHT01	177	733800	1 - 1410	15 - 1424		AI300571, AW977948, BF059278, AI796954, AI147472, AA443155, BE550035, BF351043, AI042026, AI681058, BF062259, AI131220, AI459011, BF059415, AI197871, BF754233, AV686297, AW440428, AW474309, H97980, AA443154, AI744542, AA811321, AA999772, AA340754, C01465, T32373, N69094, AI655756, AV692251, T07877, AI699053, AW473679, AI914905, R33958, C15945, AV727008, AV709207, AV725904, BF360851, AW903008, AA342134, AW051949, D45335, BE079651, N94000, BE079652, BE079654, BE079653, BE706483, BE150729, BE150748, AW843293, BE150732, AA326399, W38404, AA134959, T06598, AL031670, U91326, AP000008, AC004955, AC007050, AP001713, AP000036, AC007957, and AP001759.
HAPQM57	178	734582	1 - 493	15 - 507		R14061, BF508040, AI521991, AA765567, AW083045, AA704823, AK000761, AK024668, and AF252293.
HSLJK58	179	735584	1 - 1152	15 - 1166		AW378251, BF349814, AA687791, BF739001, AW378183, AA661723, H61383, T88677, AA443169, H62404, AW339864, AA458622, AA252063, AI129690, AW960791, AB006755, AB006758, AB006756, and AB006757.
HSLHL67	180	735747	1 - 716	15 - 730		BF919975, BF884698, AL042074, AI514302, AU126919, BE541256, AL044278, AI910012, AK025896, AB020699, AC003030, AL110250, and AK001349.
HCEMF51	181	738228	1 - 1229	15 - 1243		BF346427, BE222972, AI096636, BF055324, AI202026, N36813, AI700474, BF057448, R86180, AA836670, AI950873, AA747515, AA004893, BF929417, F28396, W57715, T09465, AI032682, BF929409, N52926, AI347667, H65793, N62496, BF819684, AA037619, BF928446, H96052, AA033692, AA335101, H66550, BG013276, W22675, W57695, AI742940, AA037618, AI023952, T30975, AI053553, T35776, AI205934, AA099655, AA053250, AA323307, AA468760, AA468791, AI190834, D58267, AA847679, AA131306, R24607, AI537601, R34823, H80658, AA468740, N79396, AA004617, AW592215, W21585, BF507721, R24507, AA419572, C18786, N46031,

						T95645, N93701, A9272964, D20268, N53988, AV735414, AA367920, R97294, AA182424, H73748, T07569, BF997014, AL161725, AC011479, AC004847, AC005387, AP000512, AC002369, AL138759, AL031291, AC004999, AC005694, AC007666, AC018633, AL021391, AC011453, AC004212, AL132987, AC007934, AC002425, AF092852, AC000052, AC011475, AL096791, AC005098, AC009244, AL162430, AC004929, AC004867, AL034400, AC004971, AL049759, AB011099, Z84487, AC016554, AC012309, AC005527, AC009079, AL031657, AL133269, and AL133418.
HTHCV59	182	738569	1 - 380	15 - 394		BF724366.
HCHCI12	183	738911	1 - 644	15 - 658		AI814233, BE789008, AI923689, H22593, AI924315, BE893732, AI672395, AW003558, AI139636, AW001296, AA341901, H52836, AA610203, BE292891, AI283870, AI950194, AA581497, AA772635, H20778, AA632417, AI982883, AW014256, H52837, AA401724, and AF191740.
HOEAU34	184	739003	1 - 933	15 - 947		BE785762, BF034740, AW291367, AI952290, AI224111, AI685688, BE884900, AW589720, BE879572, AA938159, C75518, AI917337, AA515763, AI672754, AI621127, AA025315, AA626110, AI280349, AA969438, AW593805, AI672755, BG180786, BF827581, AA604068, AI419267, AW468928, BF827580, AI376319, AW878491, BE046125, D56320, AW601519, AA024562, AI459035, AW796648, AA905143, AW363984, BF794861, AW173597, T10751, AI858736, BF513839, AI583886, AL035423, AL050405, AF151837, AL109799, and AF078865.
HFASN59	185	739048	1 - 472	15 - 486		W72633, W85825, AW292870, AI566776, AW300800, AA704967, AW769522, AW270719, BF056849, AI933210, AI955865, AI139323, AI970515, AW008498, AA102083, AV707325, Z40506, AI634473, AI637497, BE855675, BF794262, BF794268, W21929, AL161954, and AB033092.
HLHCU82	186	739503	1 - 589	15 - 603		W81266, AV715086, BE886885, AU129709, AI147438, AW958065, BE748304, BF924130, Z43756, AA076164, BG257398, BE748368, AW900549, T30492, BF963791, R31521, R39748, BF747729, AA164492, AA164408, AA165265, BF963446, AW169232, AA362001, BF961893, AA164486, AW857222, AV715737, AA169420, AA286803, R24661, BE548583, AA173493, AL049970, AK001522, AX014818, AF081567, AX015051, and AC004073.
HSDJN50	187	740786	1 - 3289	15 - 3303		CI6311, AV744803, AA617936, C16288, C16312, C16299, AA378304, AI908796, T03242, D57193, AI0277, and E00105.
HMAFM0	188	741055	1 - 830	15 - 844		AL135000, BE615660, BE615163, BF591100, BG031141, and AI004500.
HKAAA18	189	741128	1 - 615	15 - 629		BE886885, AI147438, AV715086, W81266, AU129709, Z43756, BE748304, AA076164, BF924130, AW958065, T30492, BE748368, AI312945, AA173504, AI826803, BE865502, AI984591, BE504702, BF963791, AI692671, BF033188, BG166939, AU151786, BE748892, AI691035, AW188216, BG257398, R31521, BF747729, BG252418,

					AA740828, AA054507, AA481199, AI569223, BE858405, AA814187, R39748, BF513375, BF028590, BE856745, AA164409, AW900549, BE565650, AW169232, AA115066, AI808045, AI990010, AI951348, AA504621, R76739, BF961893, AA164487, BF033353, AA457403, BE548583, AW080568, H96862, AA169281, AI219805, AA811266, AI222468, AI672331, BE565131, AA287650, W67151, AI680571, H03576, AA328319, AA115461, AA362001, AA054370, AW613600, AI619506, R76400, AI978796, AW771812, AK001522, AL049970, AX014818, AF081567, AX015051, and AC004073.
HISCL61	190	741659	1 - 470	15 - 484	BF981512, BF796581, BE085286, BF332149, AA931819, AA973582, AA429312, AW973153, AA536132, BF768310, AF103939, AL096717, AC011480, and AK026616.
HAGDA61	191	741921	1 - 479	15 - 493	N28519, AL527398, W20154, AW835447, and BF357837.
HFIIO11	192	742518	1 - 1413	15 - 1427	AI806322, BE670799, N39385, AA969265, H12301, AW172368, AI635117, AW080319, AW073584, BE047461, AA071517, BE326673, BE672127, AW663394, N25209, AA934833, D60357, N73795, AW959297, AW591719, D60791, D60969, AA812106, AW074902, AA295000, AI913551, AA082339, ZA5740, R40302, AV707810, AW449764, AW444857, AW297753, AV704312, AI472249, AI351162, H20050, AI268635, AW439652, AI380998, AI400441, AI383449, AA887902, AI028684, AA884559, AA994343, BF222104, AI866171, AI272928, BE350212, AI739164, AA370008, AI245979, AA868556, AI686138, AI478243, AW268613, AW272433, AI826470, AI122571, BE044560, AI290558, AI961527, AI963996, AI638283, AW051659, BF115914, AI823779, AI572734, AW235551, AW300029, AA071493, W81652, AI685265, N57910, AI400267, N99422, AI139467, BF223805, BE672889, BF223097, AW418679, AI969296, AA235834, H81010, AA722836, AA410211, R17911, AV683000, AI806668, AL117332, AL110196, AF220187, and AK025476.
HUSGB32	193	742690	1 - 827	15 - 841	AL520187, AL531563, AU132580, AU130799, BE882122, BE879478, AW160955, BE892389, N77502, T95386, AI272187, AU130009, T18576, AW856046, BF890940, BF891385, BF947987, R02677, AK001628, and AB007952.
HTXED15	194	743383	1 - 429	15 - 443	AA528482, BG258358, AW580060, AW384232, AF231919, AB011111, AP000268, AP000102, AP000033, and AP001713.
HCFMF12	195	743426	1 - 467	15 - 481	AI393223, AW137697, AV693339, BE551063, AI690236, BF972414, BE888288, BF382441, AV759369, BG034953, BE327195, BE895010, AV689381, AL536781, N89398, BE313508, AI159746, BE870346, AA838632, and AC022201.
HSSIG62	196	744278	1 - 690	15 - 704	BE275282, BE794760, BF828003, BF792569, BE563242, BE048058, BE264558, BE889229, BF317326, BG178267, BE383623, BG169600, R84523, BE973549, AW963822, BE048059, W90260, BF238287, BG249725, BG169750, H24191, BE388727, BG254946, BF573589, BE503382, W15480, BE742218, BG169751, AA877146, AI919155, AI553967, AA731875, AI219434, AI418622, BE396041, AI203295,

HFHF63	197	744330	1 - 753	15 - 767	AA926893, BE221867, W47042, AW295052, Z20937, AA375718, BE908386, W47041, AW881536, AW881535, Z44525, AA054582, AI651689, AW628222, AK000218, and A74618.
HMDAG5 4	198	744453	1 - 1308	15 - 1322	BF515002, AW182823, BG149845, AA010826, W95509, AI378016, AI420515, AI669104, W95412, AW297177, AA782437, AA011202, AI869000, AI702739, AA450119, AA889785, AW838926, AA255554, AI291551, and AV710402.
HCHM151	199	744616	1 - 596	15 - 610	AA885450, AI743800, N56997, AI434796, R54589, AA838013, AA972237, BF529879, BE767116, AA034159, AI339777, N32915, N92879, AA568992, AA837929, AW602025, R39403, AW004682, AI589399, AA971945, H01140, N47381, N42057, BF993812, BE701705, BG011684, AA375505, AW963809, H72112, AA404257, H72214, W25626, BE872782, AA404707, BE698928, BE698972, R12941, AW889999, BF346329, and AB023186.
HAHEA63	200	744726	1 - 517	15 - 531	AW163744, AL518997, BG116858, AW411274, AL519081, BE299314, AL516014, BF206119, BE207665, BE253757, BE893138, BE315068, BE731840, BE273432, AW239225, BE206818, BG026004, AL536767, BE314646, BE793733, BF314320, BE256738, BG250428, BG037134, BE791233, BE870505, BE264445, AL533915, BE796325, AL516728, AL535892, BE794527, BE898620, BE740410, BF689369, BE254767, BE301933, BG116860, BE794941, BF205402, BE383589, BE905181, BE905182, AW160342, BE315054, BE793880, BE407320, BE740904, BE740140, BG026322, AL515122, BE383890, BE293920, BE741879, BE901598, AW249063, AW248313, BE299034, AL533320, AL533414, BE390596, BE390600, AA173214, BE019059, BE205763, BE336828, AA221020, AA082515, BF968775, AW293274, BE019059, BE205763, BE336828, AA221020, AA082515, BF968775, AW293274, BF382705, AA191088, AA375893, BF037948, AW298594, BG164333, BF038894, AA093111, BF887454, AA580476, BE264102, BF981356, BE907690, BF206149, BE777904, AW247691, BE088651, AX013736, AJ276485, and AC011666.
HAJAN63	201	744831	1 - 562	15 - 576	BE740305, BG008977, BE882802, BE732895, AA513222, BF769244, BE733610, BE900359, BE735361, BE731047, BE900400, BE280702, BE280260, T06970, BE279426, BF761620, BE891122, BE868552, BF811619, BE531137, BE410023, BE884431, BF038337, BE735209, BF035340, BE903339, BF839400, BE391834, BE246266, AP000356, AC009287, and AK025242.
HSRFP52	202	745408	1 - 1307	15 - 1321	BF211669, AA190358, N32552, AA233943, AW592432, AA453596, BF107263, BF802429, W03366, AA454131, and AL445493.
					AA789332, AW469963, AI925535, BE669814, AI925543, AV728348, BF732842, BE080915, BE703545, AI685010, AI690167, AA570056, AA470465, AW969303, AW770920, AI634463, T95424, AW003925, T95333, AW080646, BG179881, BF310921, BE617765, AI468303, AA312696, AW268987, AW962841, AA356443, BF690832, AA311608, AA682679, and BE962309.

HCHOH38	203	746390	1 - 890	15 - 904	BF035194, BE747413, BE742498, AW955374, BE278879, BE255037, AL036511, BF346168, BE745997, R35141, T09059, AW675162, R33360, W52313, BE832849, AW881228, D58601, BE613931, BF360548, AA227833, BE904123, AL529226, AW675247, T31282, BE707890, AW674880, BF762613, H08615, Z43881, BF958024, BE175335, BF956636, AB026894, and AL080083.
HMSBS61	204	746583	1 - 1137	15 - 1151	AW962762, AA056485, AA256728, BE676173, AA044899, AA152263, BF724264, AA833748, AA761514, W67990, BG180100, AA533357, R25725, H14406, AV649750, AA370304, R21676, AA749192, BG253897, AW137063, AA332425, AA906615, AA609380, AA707774, AA767523, AI473912, N32366, BE046443, AJ250014, AB020656, AK000187, AK024348, AF161542, AX017216, and AK024212.
HNFHK32	205	746584	1 - 999	15 - 1013	AA044687, AA056651, AI130924, AA150290, AA044899, AA150588, AV649750, AA833748, AA056485, AA152263, AA761514, AA906615, AA767523, AW962762, AA370304, AK000187, AK024212, AJ250014, AK024348, AF161542, AX017216, and AB020656.
HTPCT63	206	747208	1 - 543	15 - 557	BF205650, AW957197, AW954542, AV698342, AV688020, AA491052, T33088, AA287563, AA007576, Z45821, AW996840, BE539893, AW378973, AW378977, BE294195, AW663291, BE081286, AA188797, AW075763, AI907226, AK002065, AK023416, AK022659, AB019602, AB019494, AL137726, and AC008925.
HE8NL29	207	750243	1 - 715	15 - 729	AC011077, AC011077, AC011077, AP002381, AP002381, AP002381, AP001016, AP001016, and AP001016.
HTTFM66	208	750750	1 - 421	15 - 435	AU136930, AU124766, AA147472, BE262742, BF791639, AA490803, AL049745, AK001269, AL354612, and AL354613.
HE9EM20	209	751048	1 - 2794	15 - 2808	AL521540, AL521539, BF724865, AL043617, AW612138, BG026803, AA490652, H49906, BE884132, BF576441, AA211731, AW340639, AI863590, BE960872, BE463538, AA490653, BE071845, AW820883, AA181029, AI858386, BF197532, AI566009, AI933390, W69466, AW316992, AW070487, AI923866, AI935070, N73159, AI566750, AI417872, AI016324, AI090116, W15440, AV725301, AA186420, N20596, AI671349, N39139, AI265888, BE858974, AA913036, AI358573, AI628972, AI186732, BE790478, AI984363, AA704919, AA917601, W69550, BE934848, W39624, AI650674, BF476672, BE934846, AA894710, AA447125, AA099943, AI984949, R82637, AA693315, H09503, BE763632, H70345, T90178, AA349889, AI752629, H09502, AI471414, BE693723, AA369428, AI537286, BE693716, BE693708, R11238, AW821064, BF884852, BG007300, AA404558, AW131948, BE005812, AW966090, H70346, AL135226, AA367092, BF086478, AA853977, BE071864, D79253, BG015935, AA827603, AA369427, N46549, AA249763, T82987, R82682, BF111281, AW960699, D79320, AW361956, AW821060, R11186, T05974, AA187789, AW176530, BE810842, BE810771, BE005726, and AB018283.

HISCQ44	210	751286	1 - 828	15 - 842	BF683169, AW752992, H50932, AL525434, F12992, BF793997, AU123305, AL525390, BF132571, AK001160, and AK023622.
HTGAU79	211	751677	1 - 1598	15 - 1612	BF969492, AV648389, BF348172, BF979269, BF973457, AA579641, BF683887, BF980517, AV648431, AV757661, BE612779, AW969738, BE777860, AI149891, AI889233, AA659710, AA461487, AI028588, AA460132, AV648314, BF940060, AA113277, AA682750, BE874201, BF510365, AI421205, AI753378, AA985248, AA936668, BE872797, AI914588, AI493749, AI169113, AL449856, AA046575, AA633392, AA722409, AI752615, AA169112, BF514541, AI424537, AL449857, BE545191, AA233726, AW268600, AA516077, BF979800, AA483490, BF060885, BE907645, AW082930, AW815447, AI201331, AA074311, AW609606, AW609594, BE716177, AW601214, AI989665, BE925921, AV658092, T87841, AL449485, AL449487, AL449486, AI087102, AL031055, and AL133520.
HETAJ12	212	751735	1 - 526	15 - 540	AA336727, AI435182, AI811303, AI860491, AI635650, AI149504, AI128359, AL021878, AC007270, AL118502, AP000542, AL109941, AC007204, AC008770, AC011477, AC007386, AL359218, AC006065, AC004985, AL138680, and AX013167.
HDABX16	213	752630	1 - 789	15 - 803	AL530978, BF206968, BF311229, AL518827, BE870189, BE261556, BE312224, BF312384, AL529296, BE621421, BE546607, BF979426, BF733995, BG033996, and AK025822.
HFEBM11	214	753105	1 - 446	15 - 460	BF035651, BG028710, BG110379, AW246245, BG035531, AA496102, W52780, BE560655, AA243109, AW675353, BF678739, AA884239, H85385, AA130095, BE812187, W04939, AV746713, BE617457, BE812189, BE840806, AA523735, BF750755, BE267207, BE770864, BE617905, N49855, AA744680, AK025402, AY007143, and AB012181.
HHGBS74	215	753235	1 - 1645	15 - 1659	AW853219, AW997066, BE243270, AA885705, BE711235, BE711238, BE867296, AA587619, AF114048, R92130, AA631738, AA573593, BE242758, AW629955, BE243140, AW275658, BF088850, BE243090, and AL136418.
HTAAT39	216	753289	1 - 1133	15 - 1147	AA446344, AA612751, AA298785, AA298780, AA298784, AA446524, AA298781, AA381170, AL357565, and AL357565.
HHSFO30	217	754184	1 - 305	15 - 319	AA099051, BE545794, AW966127, BFS27400, AI834232, H73629, H73153, and AA249658.
HTAFE69	218	754529	1 - 486	15 - 500	AL109806.
HMSCM47	219	756579	1 - 1377	15 - 1391	BG122203, BG033920, BE259004, AL039961, BE275205, BE252695, BE391526, BE387863, AA683395, BE898764, AA159553, BE171959, BF983104, AA070288, AA345663, W39500, AA195153, BE895254, AA247937, AV660024, AI240936, AW972536, C03121, AW238459, AA036806, BE501409, BF026836, BF573216, AA195024, AA576054, AI700985, AI733547, AI668621, AI821455, AI820824, AA433955, AA600978, H39940, H44284, AA581968, AI082471, AW753990, AW451108,



HEITLM70	220	756676	1 - 1126	15 - 1140	BF306826, AA679007, BF000539, AI954678, BE503335, AA366682, BF352313, BE296500, AI696707, AW409673, BE269312, BF923618, AI203303, BF001790, AI344341, AW237780, AA505943, H44446, AA724912, BF511836, and AA677790.
					BE740087, AW960605, BE304956, BE207572, BE645551, AA425334, BE048918, BE927270, BF748385, HI3734, AW751971, AW748813, AA559207, AW362246, AW601591, AW195635, AI908541, BF090860, BF516168, AA335628, BF591120, AA177001, AA160404, BE179770, AI824341, BF002699, AA578987, AI681859, AA991211, BE859016, BF038466, AW751973, W37110, AW611712, AW150693, AI357925, AV724505, BF872555, BF855782, AW173702, BE830375, AW664454, AW102565, BF765954, BF515478, BF090962, and AW001725.
HL YEN32	221	756950	1 - 787	15 - 801	BG117737, BG164386, BF854000, BG165061, AA428942, BE179097, BF194980, AI597929, BF205686, AW014245, AW769144, BE964916, BE620629, BE620090, AI687722, AI521276, BE276332, AV744444, AI559587, BE267602, AI279594, AI346062, AA625675, C75468, BF949795, W25095, AI581157, W44408, BF804338, BF854448, AA252324, H46994, H01257, W93787, BG029616, W57884, AA364849, BE253697, AA442735, BF811696, W31169, AA364527, AA160184, AA252345, AA862309, R08467, N28477, AA931691, H22406, BF965801, AI648609, AA148611, BF808228, AA281164, AA805601, AW959596, AA527501, AA447263, AA368445, N98322, AA482622, BE895802, BE877959, AA303251, BF854612, AA482477, BF805073, BF805234, H46453, AU157783, W26854, AW380284, AU148604, AA160185, BG118533, BF805062, BF809458, W22475, BF808178, BF738651, R08461, BF808229, BF817630, BF808126, W93786, AU148185, BF808227, AI701223, AA026285, AW366545, BF805070, AA299987, AW873163, AW407812, AI862394, BE076248, AI921016, AW881017, AW817812, AI359819, BF872137, AW382316, N46559, AI061452, AA809361, BF810265, AU146664, AA954145, AW382318, AW027703, AI828926, BF854649, AI276202, BE833277, AW800408, BF873756, BE174189, AW602319, BG004412, BG003226, N45470, BF871111, AW168057, BG005855, W44544, H22405, AW935097, BF762066, BF873735, AI434201, BE140726, AI094763, N47595, BF772094, BE925832, AW993021, BF805232, AI424178, AA280864, AW995613, BF763998, W94846, BF805265, N55950, AI033439, AK027202, AL117430, AK023201, AK023082, and AC010092.
HHFHU45	222	757207	1 - 701	15 - 715	AA043394, BF793925, BF310630, AL521590, BE257614, BF310545, AL526416, AA447023, BE255588, BF036703, BF111265, AW384800, BF206557, AI740580, AI741581, BF095771, AU139117, and AK002164.
HHFHR59	223	757351	1 - 794	15 - 808	BF967526, BE281639, BE799879, AW630745, W56608, BE247401, BF341516, AI750884, R17248, BE835036, AI765843, AA863109, AA346989, AA378515, BE763539, AI767788, AI336999, AW274450, Z98258, AK025641, and AK025861.

HDPPA45	224	757472	1 - 879	15 - 893	AL525879, BF314970, BF568109, BE513130, BE265505, BE378495, BE262153, BF316733, BF310163, BE273819, BE395987, BE266568, BE392129, AA307936, BE871766, AW651798, AW957845, BE263227, BE251642, AW957921, AA458517, AW30663, BF057258, AW362111, AI971714, AW975900, W23063, BE253991, BE256646, AI825679, N50335, AA910981, BE646636, AI811256, AI831840, BF000491, BG163616, AA994984, AA927184, AI685335, BF962309, AI148734, C00192, AW009759, AI380138, AW613907, AW628080, AW614442, AI559684, AI796492, BF436980, AF190464, and AC019099.
HMAGC74	225	757601	1 - 424	15 - 438	BE856886, AI937631, AI150352, AA813461, BF756717, BE536240, BE261441, AU123413, R72672, BG120533, BE785322, TI9147, BE719057, BE262082, AK025479, and AK001167.
HHFFR79	226	759851	1 - 1551	15 - 1565	BF984917, AV651048, AV651055, BF062093, AW604368, AA831712, N49477, AI239505, AU160402, AU152742, BE206405, BF980447, BE545660, BE082703, BG176559, AA194860, AI127127, CI7830, AV763218, BE019923, BF131534, AA732408, AW796614, AA999677, AA999662, AA376848, AI935648, AW242518, R23330, BE082918, AI678422, AU132460, AA348897, AA352059, AA767527, AU131664, BF691603, BF965186, BF369188, C05569, C05208, AK023119, AK023261, AK024042, AF198534, AF186095, AF163665, AX003675, AX046355, and AX046356.
HMGBP83	227	759888	1 - 1512	15 - 1526	AV759702, AA311915, AW972047, AA953779, AA521381, BF241426, AW995845, AI806245, AW361598, AI911194, AI580187, AA884217, AI872423, AI859991, AI610362, BG181066, BF725463, AI473536, AI538850, AI866469, AW054964, AI366900, AI802542, AW118518, AI440239, AI923370, AI926790, BF812960, BE786043, AI886181, AI890907, AW148363, AI568138, AW051258, AI611738, AI860003, AW983832, AI241923, BF814527, AL514829, AI570807, AW026882, BG222103, AI632408, AW302973, AW268060, AI635067, AI698391, BF812938, AW983703, BG116926, AW081036, AW983691, AI889189, AI866770, AI119319, AI866820, AW148294, AI619502, AI677796, AI627988, AI648454, AI915291, BF970652, AI433157, AI702073, AA806720, BF812961, AI633125, AI868931, AW152182, AI524671, AL513913, AL514843, AW008353, AI433976, AI288305, AI308035, AW983829, BF795712, BG257535, BE963035, AI521596, AI640704, BG110517, BG260144, AI609409, BF817402, BG029667, AI624293, AI499463, AI559586, AI963846, BF727091, AI554821, AW858243, BG252929, AW151136, AI539771, AI932794, BE897632, AI537677, AI494201, AW051088, AI500659, AI824576, AI815232, AI801325, AL515195, AI500523, BF812438, AI499963, AI270706, BE885490, AI582932, AI923989, AI284517, AI500706, AI491776, AI445237, AI620003, AW151138, AI521560, AI500662, AW172723, AI284509, AI889168, AI440263, AI564719, AI866573, AI633493, AI434256, AL514773, AI270183, AI805769, AI888661, AI284513, AI587606, BG031815, AI888118,

AI613038, BF528717, AI436429, AI889147, AI889376, AI371228, AI921248, AI440252, AI670009, AI047422, AI620089, AI866786, AI696570, AI610557, W74529, AI569975, AI634345, AI887499, AI471909, AW086113, AA449768, AI635467, AA641818, AW167021, AI670002, AI620284, BF868489, AI564259, AL513977, BF982923, AI591420, AI687127, AI590227, BF792961, AV743631, AI648509, AI352497, AI651840, AW131294, AW073865, AI673363, BF895953, AW198090, AI956080, AI694157, AI636588, AI537261, AI371251, AL515413, AL042551, AW151714, AI432030, AL039086, AL514799, BF338002, AI559296, AW238688, AI536638, AL514887, AL045500, AI889133, AI452560, AI254731, BE784387, AI635016, AI500061, AI537837, AI686817, AI890833, AL514757, BE544111, AI683173, BF987104, BG166490, AW079409, AA788861, AI638798, AI569309, AA225339, AI933589, BE886728, BF727072, BF726237, AW149925, N33175, AW150794, AI659795, AI796743, AW079572, AI445829, BF814453, AI828583, R32821, AI860897, AW166583, BG178669, AV709679, AW161156, AI355827, AI445965, BF965814, AI499890, AI349967, AL514359, AI784252, AW190194, AF233322, AX040974, I89947, AR038854, I48978, AK026408, AF087943, A77033, A77035, AF026816, AF116688, AL353940, AX040958, AL080159, I48979, AL137533, AL389939, Z82022, A08913, AL137550, AL389982, AK026462, AL137480, AL110280, A08916, AX026824, AX026823, A08910, A58524, A58523, AL049382, A08909, AK026744, AF061981, AF113019, AL353956, AL137488, U35846, Y14314, AK024538, AF113677, AL080074, AF183393, AF113691, AL137271, AF130055, AL137478, AL137560, AF225424, AF185576, A08912, AL359941, AL050024, I89931, AL137538, A21103, AR087170, AF111849, AK027164, U96683, AF162270, AL117435, X82434, AL122049, A65341, AL162062, AF056191, AL050366, AL359583, AF262032, AF271350, AF090934, AF119899, AL122050, AK026506, AK025798, AF026124, AK026593, AL080148, A03736, AL137292, AF008439, AF090903, AF116682, AK026534, AF285167, AB052191, AK027096, AL162003, AK025632, AL023657, AF177401, AK026532, U80742, E02221, AF314091, AF139986, AF119875, AL390154, AF116654, A93350, AL133075, AF130077, AX010492, AL117440, AL050138, X72889, AF230496, AF116691, AK000418, AL049938, AK026528, AB048953, AI299431, AK026959, AF217987, AK025435, AL050149, AL122118, AL133560, AL133072, AF032666, AL122110, AK024992, AK026480, AL133080, AK026642, AL133665, AK025414, AX045627, AK027204, AB048975, AL117460, AL110221, AK026927, AL133077, AK025484, AJ012755, Y07905, AL137476, E07361, AF113689, AL137557, AK025084, I30117, AK027146, AF116646, AF130099, AL050277, AL137463, AK000652, AK024588, S36676, AF067728, AX042059, AJ000937, I33392, AK025339, AB047904, AK026542, AK026885, AK027160, AK025312, AK026551, AL133067, AF017437, AF116676, L19437, Y16645, AB051158,					
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HAUBV24	228	760121	1 - 871	15 - 885	AB041801, AL133640, AL137529, AB050431, AL050116, A45787, AL157482, I00734, AF116631, AF106862, AL049283, Y11254, AB050410, AB048919, AF130100, E02349, AL137459, AB048954, AK026762, AB048974, AF130105, AK026630, AF116602, AF130082, E00617, E00717, E00778, E12747, X65873, AF155148, AL389935, AF130104, AF067790, AF119337, AK027114, AL137526, AF118094, AL049452, AL049430, AF113699, AF111851, AL117583, AK026741, AK000083, AK026784, AF153205, AL117585, Y09972, AK027116, AK025524, AF090901, AL133113, AF130110, AL050393, AL122123, U49908, E03348, I03321, Y11587, U67958, AB050533, AF090900, AF061795, AF151685, AL133016, AL050092, AF104032, AF119865, AK026045, AB050534, AF177336, U58996, AF119909, A08908, AL117432, AK026855, and AL162002.
HWBAQ7 1	229	760146	1 - 442	15 - 456	AW299924, BF591991, AA641636, BE552126, A1244707, AW582864, W02244, W31405, AA700527, W31364, AA004846, H57642, AA682556, AA005063, AW137554, W78800, H58485, W80643, AA813614, A1982595, H93564, N58338, AV684440, W04505, A1739425, BF063540, W04549, N73988, H93563, AC058787, AC024068, AC068906, and AC034109.
HRACE71	230	760240	1 - 445	15 - 459	AA078851, AW237409, and AL158198.
HADGC71	231	760321	1 - 447	15 - 461	AV710229, BF085557, AL137201, U95825, Z75889, AB023196, and Z84467.
HSXFL85	232	760494	1 - 552	15 - 566	AL538220, AL538219, A1480012, H19676, R89656, BE466061, A1992259, AA308883, A1937402, A1633754, AV748497, BF508330, BF316690, BE261557, A1094532, and AF225903.
HNGDQ71	233	760510	1 - 433	15 - 447	BG260462, BE966632, BE622688, AW963926, A1521877, A1334984, A1765363, A1017581, BE274396, AA885230, AW518279, BE736962, BE302086, N42638, N33002, A1367782, N20045, A1354903, BE622520, AW469894, N29070, N25847, N42447, AA379316, BF812981, N21440, AA379869, W94393, BE894449, N43812, W74612, AW276528, AW630384, AW611653, N20169, AW879040, AA994825, AA164284, AA164285, BF350517, AW817775, N28593, AF235022, and M94043.
HTOJT28	234	760822	1 - 1278	15 - 1292	N25951, AU119260, AL532307, AW009637, BF222719, BE675891, BE551994, A1417147, A1250808, AW512361, AL519408, AW298190, BE644632, A1870137, BE676177, AW978338, A1110587, BE798561, BF062834, AW977503, BE798584, AA768395, BE779351, A1289263, AA769533, AW613648, N26848, AW373450, AW297301, W15533, A1808400, A1079688, AW085089, BE176571, BE176567, AW886581, BF698882, BE674076, AW972105, AW972128, AA677498, A1799484, BE467997, A1360937, A1378075, A1457270, A1363333, A1681227, A1363339, BE218068,
HSDZF13	235	760890	1 - 910	15 - 924	

					BF432688, AA627925, BE551356, AI806180, AI984311, AA483815, AW291197, BE294231, AW269239, BE718166, AI300955, BE328888, BG163611, AI129095, BE176524, AW410019, BF993298, AA280184, N42781, BF223391, AW067835, BE218572, AA807144, AI681511, BE707019, BF811910, BG015002, BF026769, BE072453, BE072468, AA748383, AW856033, BG014996, BE072360, BE072414, BE072362, BF063631, AI696003, BE934565, AA479673, BF026313, BE934584, AA281561, BE548839, AA486902, BG013649, T07608, AW852099, AW886779, AW845287, AW845295, T84272, AI126668, AI126371, AL135056, AW812632, BE884938, BG013650, BF082672, BF154756, AA972313, AW852117, BG002895, AI082332, BF345865, BF928424, BF803056, BF327256, AL353194, AK021791, and AL390136.
HTOBH39	236	761762	1 - 1242	15 - 1256	BE748329, N74752, R59259, R19718, AL044945, ZA3800, N46928, BF989140, AA215691, AW672673, W20097, H93163, H92772, AW451096, AW672684, AW675432, R05649, BE748804, AW675425, AI122843, BG236421, AA844417, AL355365, U92072, AF118890, and AF118889.
HE9RP73	237	761860	1 - 834	15 - 848	BF195423, AW295027, AI632894, AI375620, BE348529, BE222485, BE348738, AI375618, AI797110, AI912217, AW770520, AI458372, AW293332, AW294242, AI032301, and AA937736.
HSXDG07	238	762023	1 - 1192	15 - 1206	BF001696, AA534383, N46697, AU151694, AI499339, AI743820, AW589672, AU149025, AI432311, AI141137, AI206397, AI925435, AU146251, AA779076, AW262097, AI922995, BE963120, AI378560, N51246, AW028157, H16937, N39252, BF210631, BE748997, AW295413, AL528775, W26344, Z41197, D82385, F11545, AV650935, C18350, Z45504, H12188, N66289, AA283636, F09207, AA236640, T99276, F09206, BE748589, F11546, H11659, T17419, H59417, BF935776, H16829, R27309, R25225, T99221, T99540, AW338205, D58891, R99013, BE716553, T99263, BE716566, AW749636, R55968, AA032271, AI648397, H73161, BF813725, AI831888, BE618701, AW373183, AW887344, D82517, AW887413, AB037835, AK026928, AK001513, and AC007404.
HDPHG57	239	764498	1 - 435	15 - 449	AI693286, AI816113, AI684537, AA429420, AI299311, AA431915, BF446559, AA167761, BF698832, AI751135, BE778891, BF130655, R60698, BG170065, BE789599, BG255064, BE895312, AV717371, BF542106, BE778896, AV717171, N26943, BF796752, AI816153, H17558, W24886, AA716760, BF215110, AA424450, AA301438, BF185620, AI239938, AV705702, AI302044, AA554693, AW895662, AI051013, AI494497, AA349162, AI421385, BG033297, BF380304, AA428364, BF059220, AW964690, R79049, AA325072, AA323645, R78947, BF575192, AA282105, R78954, AI992090, N95752, AV703917, AI188518, AF224669, and AC018797.
HGBAD15	240	765442	1 - 1248	15 - 1262	BF084678, BE765056, AW996750, BF084642, BF838184, BF915389, AW965064,

						BF801416, BE886249, AW813003, AV696891, AV696823, H90200, T71483, T67605, R94391, W03660, BF800050, BF084818, BF084790, R16438, BF084824, BF084824, AU149677, T86896, R05366, BF670154, N91701, AA343651, T71331, U77324, AA618549, Z45791, A1744411, BE697880, BF229401, T86897, R12694, AW937308, AX048074, AK001348, AL122121, and AK022188.
HOEP07	241	766074	1 - 1425	15 - 1439		AU119569, AL532985, AU142432, AL532316, BE779194, BG033810, BG028780, AV760710, AV727636, AV713588, AU133495, AW339473, AA459878, BE539968, AI620522, AA316495, BF210404, BE257714, BG115669, AA416834, BF593261, AI800813, AI802008, AI214937, BF970302, N42223, W01150, AA558968, AW402874, BG107544, BG117674, BF977848, AA190851, AI973180, BF818898, BE694334, AI239400, AW151776, AW135559, AI421126, AV661683, AA416686, AA504377, AI633340, AI088404, AI361464, R24743, AI708416, N87417, AI364347, N54199, AI768955, BE089339, BE694331, AI474186, BF571572, AA298100, AA330651, AA453973, H11398, AA090089, BE816247, BF352077, AI200360, T36003, BE178580, AW953909, BF573798, N75920, AI918789, R23562, T16195, BF351871, BE670538, D79036, AA453468, AK001766, AK021855, and AK023977.
HFHT50	242	766558	1 - 815	15 - 829		AW138187, BE207094, AW976574, BG115559, AI738575, BF513404, AA742327, BE244281, AW504001, and AL137480.
HANGD38	243	766868	1 - 1482	15 - 1496		AL526452, AL526495, BF115050, BE408960, AW135408, AU153435, BF036717, AL044198, BE877119, AW044684, AI937823, AI869273, BF568751, AI131226, AW511009, AV690044, AI697401, AI089110, AA253416, AI962638, AV697476, BF568579, AI004204, AI652959, AI150387, AA284777, AI128104, AA837002, R73456, AI869257, AI566712, AI632823, AI587100, AA643153, AW206838, T54515, AW731976, AA335416, BE279820, N22928, AI699828, AI254749, AW381851, AW058487, BF349036, BE265387, AW381852, BG055543, BE547316, AI000537, BE278264, AI913047, AL117398, and AK024269.
HPMGQ75	244	767356	1 - 1144	15 - 1158		AU136849, AI138605, BF090004, AA748696, AI248602, AW135160, AI093693, AW504888, AA350817, AI056943, AA806341, BF962888, AA450196, H09754, AI358958, AI655847, AI352547, BE176203, BE045975, AI149105, R46281, BF090050, T06526, AA699357, R56089, W90058, H09777, BE176213, R46194, BF953979, T07179, AA630146, AA630242, AI739458, AA149104, and AK001942.
HB1JH66	245	767674	1 - 777	15 - 791		AW976160, N24210, BF853022, AI493459, AI744490, AA515275, AW974563, AA400218, AA747717, AI214995, AW977625, AI963927, AA747813, AI809251, AI188143, R58937, BE222577, AA435795, AW474677, AI699142, AI985611, AI934156, BG104882, AA648859, AA884351, AI015483, AA400129, AI024070, AA811998, AI419128, and AL122109.
HEGGB78	246	768346	1 - 1946	15 - 1960		AW450341, BF062815, BF433621, BE042961, AA237093, BF437702, AA432270,

						AI472317, AA868341, AW977034, AI264599, AI095500, AI360329, BF939207, AA847485, AA431260, AA236681, AI380193, AI862575, AI800949, AA158767, AA625441, AA565015, AA609030, AA099081, AI800942, AA847586, W76503, AA057283, AA058728, AI475452, AA481052, W72555, AA046202, R43719, AA533026, AI150119, H64004, AI077622, AW449914, AA046282, BG150675, BF446183, T52803, Z20632, AA721115, H64054, AK024637, A75250, AI109914, and AI359994.
HAJBC01	247	768776	1 - 369	15 - 383		
HHGCP75	248	769003	1 - 751	15 - 765		BE867540, AW272260, AI378661, AI871902, AW957020, AA131886, AA193449, H06773, AI349551, AU138307, AA131887, AA193682, R52308, AL513784, F11415, H64261, AA016110, AL524822, BG122385, AA059138, AA299723, AW363105, F06646, BF986163, C06172, AW754048, F05102, AV733911, R25576, H64260, R77194, AW363124, BF446269, AI949988, W39604, H15390, AW024813, BF803600, BG035134, BF362262, AA434293, AL524821, AW901366, AW664063, AI919247, BG007354, AW806545, AK001887, AI249976, AC006966, and AB025580.
HAIDO95	249	771350	1 - 1405	15 - 1419		BG257943, BG165269, BG259172, AI424802, AI916783, BE910430, AI819053, AI816777, AW272605, AI590692, AI479430, AW514278, AA551171, BF940155, BF445111, AW629154, BE559548, AI735281, AI571324, AI478759, AI393954, AA721080, AI524155, BE503212, AA810185, AI097009, BE390809, AA284628, AI23017, AI261506, AI767266, BE327222, AI681243, AW014194, AW160735, AW014209, AW008652, AA284635, AW376166, AI458147, AI476200, AW376156, BF128669, AI093995, AI143101, AA732032, AW025657, AI308770, AA234937, AA252222, AA242937, BF221723, AI276128, AI360495, AA804455, AW137536, AW376188, AA831992, AA279678, AA705403, AW386011, AA234936, BG231189, AI082377, AW173743, AA371418, C16269, AA169648, AI082246, AI434042, AI094553, AA295327, AA169828, AI094458, AA282437, AI870814, AA204686, AI523829, AW376165, AA280609, AI015800, AW473793, BF773007, AW376186, AA207071, AA207070, AW768513, T10533, BF247348, N98898, AK000654, AC004067, and AC004068.
HE8UD19	250	771648	1 - 973	15 - 987		BF692975, BF980357, BF970789, AW995310, BF943459, AW474322, AA609972, F27451, AW748103, AI491737, BF920158, AW675385, F37347, BF217122, AW387654, BF954266, C01106, BF959308, BF057458, BF954263, AF117829, AC074178, AF061326, and AF069291.
HMAIT58	251	771900	1 - 426	15 - 440		AV712950, AV716955, AV715751, AV716324, AV712255, AW016896, AV717365, N77056, AA333542, AW662189, AA363393, and AL390195.
HDAAE77	252	772217	1 - 1516	15 - 1530		AW961900, H10235, AA310824, R67302, T08985, R17955, AV746798, F05576, R60879, AB046764, Y18276, AF072372, AL137748, and AF072371.
HKAJO7	253	772639	1 - 547	15 - 561		BF311525, AI537814, N33624, AI254765, AA317406, R99735, AB039887, AP001628,

					AP001748, AC006080, AC005089, AP001746, AP001724, AC004216, U91322, AL121900, AL132653, AC009506, AC004820, AL009172, AC012384, AC007225, AC006075, AC000029, AL031407, AC002299, AF312913, AL109623, AL157384, AP002026, AC011444, AC005098, AC011895, AC025435, AC078843, AC008155, AC007679, AC002036, AL136979, AP001619, AL136128, AC004166, AL049780, AC007655, AC002378, AC020898, AC006455, AL031733, AC010458, Z93015, AP001745, AL049778, AL049834, AL138756, AC002429, AC005015, AL356652, AB017335, AL390755, AL157818, AL096700, and AC005725.
HDTCF73	254	772840	1 - 1291	15 - 1305	AW957373, BE967654, BF672466, AA243659, AA243138, AL435874, AA233092, BE510635, AI823876, AI277512, D51291, T33433, AA350528, AU156897, AA243139, BF478040, T23439, R18090, AA371115, R51070, AI886821, R42984, R39042, T82466, R40894, AW894125, AI382942, AI695784, AI539054, F11126, F02015, D52490, AI685658, C01658, AA748514, T03527, H05920, BE934157, BF999110, T06066, AW901173, BE699319, AK001942, and AF131789.
HDTFI32	255	773040	1 - 524	15 - 538	BF208846, AA158924, W32064, BF358935, and U44731.
HLQCY70	256	773347	1 - 360	15 - 374	HI9562, HI9062, BF681106, BE675015, AV725465, H52459, R69117, AA614237, AV708759, BE718316, BF726278, AA448546, BE772280, AA447563, AA311577, F36358, BF962541, BE719042, AW327928, W05714, AI093147, H23844, H81705, BG236194, AA772120, H22656, AA657706, BF446211, AA533518, AI582362, BE268803, BE772274, BE772259, BG032680, AL037342, BE250833, BE393724, BE270632, BG180723, AW955450, BF984538, AW974969, BF381633, W93751, BE270682, BE397872, BE774011, AL048648, BF184282, AA335093, AI525497, BE733059, BG258238, AA346023, AI204550, BE277134, BE798289, BF978089, BF337703, AI074215, AA284494, W20206, BE908897, AA533572, H46711, AA464383, AI333325, AA045542, AA287198, AA036876, AA724195, AA865386, AA100765, BE170819, AI168457, AW152438, AA327562, AW404423, AA709329, AA535547, AA555050, AA586432, AA482584, T77375, AI471545, R69236, AA056936, N90563, N26779, BE737066, AA464272, W42411, BE735075, AI139932, AA548760, BG178440, W93700, AA100712, HI8965, AA091696, AA419348, AA877233, AA352847, BE719039, N39863, N26835, AI200703, AI140027, AI475731, AI864445, BF742201, H45228, AA465029, AW058191, AA448262, and AA568726.
HELDG78	257	773740	1 - 307	15 - 321	
HAGEK19	258	774276	1 - 706	15 - 720	AV690304, AV655247, AI631883, AW681208, R56792, AI046024, AI048523, AI767614, BE439542, BE439434, AW609020, AW608995, BE439578, BF966771, AW608990, AI293459, AF038124, BE067210, BF334397, AW609005, AA545726, AA545816, AA545727, AJ404664, AJ278596, AJ251619, AJ278594, AJ404665, AJ293456, AA389641, AV746398, AF144029, AR038762, AX001322, AF095853, AJ290944,



						AF018071, AF029692, AJ277249, AX027452, AF033115, AC005501, AF144028, S80858, U89589, AB026436, AF046029, AF064096, AX014322, AJ295141, A93445, AF135422, AF046032, AB019570, AB040807, AX035760, AJ300180, AJ300181, A57129, AF045378, AF019711, AX002414, AJ295140, U67863, AF015282, AF054096, AF054135, U79408, A95310, X79046, A81344, AF056703, AR069413, AJ250192, U79394, AF019692, E13215, AF015280, A65365, AX003207, AF054014, U79377, U13667, U22491, AF054018, AJ249369, A80476, Y11107, U79331, AJ005669, AF054071, AF054113, U79329, AF054132, AF054025, and AF056695.
H2CBA34	259	774569	1 - 1703	15 - 1717		BE410951, BE385296, AA307119, N41943, N31453, AI917923, BE275846, AI074304, C18742, AJ239398, BE086052, AA317489, AI208843, N25339, AA991578, N55244, AI190190, AA369818, AW957099, BG251842, AA034423, BF942978, BE269211, BF944736, BE513344, BF942976, H82636, BE396785, AA369558, AC004228, AC003025, AF139813, AF073499, AF073501, AF057169, AF057170, AC007263, AC007404, AL121949, AC011895, AL022336, AC005207, AC003072, AF196970, AF196969, AC018720, AL121899, AP001725, AL133551, AC002470, AP000703, AC004522, L78810, AC005015, AC025594, AC005666, AF134726, AC005914, AC005288, AC005049, AC023880, AC006270, AC011495, Z81364, AX039602, AC005924, AC004854, AC005378, AL133706, AL133232, AC024561, AC011453, AC006480, AP000302, AP001727, AC009244, AC005088, AP000114, AP000046, AC002492, AC005180, AC006017, AL359382, AC008474, Z98051, AF275948, AC074338, AL139396, AB015355, AC006014, AL031767, AL109897, AL161670, AC002477, AC004531, AL133507, AC007308, AC005037, AL139039, AC010328, AC005800, AC005488, Z99943, AF207550, AC016027, AC018644, AL049780, AC022392, Z93015, AL008583, AP001695, AC003665, AC005225, AC027319, AC016995, AL121652, AL162505, AF124523, AL049631, AC004867, AC011475, AC002045, AF053356, AL022326, AC004686, AL096840, AC007055, AC003982, AL136137, AL133288, AL161731, AC005098, AC008536, and AL391684.
HDPTC79	260	774739	1 - 1455	15 - 1469		AA495793, AA149783, AA495729, R13843, AI160386, H11562, AA418639, AA151775, AW022459, AI263905, BF924146, AA302905, AI590796, AA418577, AA302904, BF526295, BF990024, AW837927, AW838065, AW837899, and AW838051.
HTHBY73	261	775247	1 - 720	15 - 734		N40667, AA329668, AI532059, BF092002, T35364, H64102, Z43611, BF229785, AI307240, BF364263, BE702964, AI951554, AI909783, AI816064, T29948, Z43604, AI942492, BG054939, AW751045, F07345, AA160594, AW969529, AW188628, AW302233, AI335011, AI423498, BF341298, AA293045, AI051728, AA293436, R78689, H12368, BE696174, BF094196, N26393, AI076557, BF002146, AF249319, AJ293970, AK026102, AF287269, AJ293659, and AF287270.
HE8DL19	262	775419	1 - 580	15 - 594		BE871751, BF980147, BE180414, and AC008784.

HMEGE46	263	775455	1 - 701	15 - 715	BF433789, AI916608, AI344659, BE514712, AA988582, BE219928, AI122693, BE244195, BF222824, AW139768, AI744445, AI457767, AW134479, AW192621, AA171386, BF438959, AI955090, AW149612, AW735205, BE246231, AI953327, AW009231, AI479545, AI333127, AW206995, AI972628, AI807108, AV657186, AI858921, AW016538, BF939058, BF434318, AI351886, D29147, AI337048, AI299186, AI536715, AI656738, AI742727, AI453605, BF061339, BE220688, AI702718, BF196240, AI831375, BF695707, AI762299, and AK023109.
HTELA85	264	778081	1 - 1999	15 - 2013	AL517126, AA868347, AU124289, BE886699, BF981239, AU124539, AI678634, BF970664, BE889232, BF347159, BE378624, BF969563, AI362032, AI360234, BE783809, BG029433, AI890662, AI207693, BE080873, BE328406, BE884759, AW959929, AA425531, BE173494, AI857342, AW148767, AW391919, BF980651, BE251405, BE536870, BE778123, AW664598, AI870540, AW268349, AW291307, AW051419, AL515145, BE328726, BE542081, AA397933, BG033239, AW613279, BE047494, AA425342, AA604376, BE568547, BE782576, BE869041, AW337957, BF944754, AW058214, AW383098, AI015429, AI811856, AI700231, BE894421, BE867405, BE564442, BG109303, BF082740, AW088558, AA429058, AW368050, H94867, BE568757, AW150319, AL040690, AI088198, BE564719, AI275791, N28822, BG118538, AI984513, AA664447, AA581367, AI318087, AI554535, AA100536, BF349648, AI570789, AW885715, BF742844, AI038553, AA437168, AA781893, BE729239, BE925843, AA127205, AI457156, AA487373, AA487256, AA506615, AI700449, AU148368, AA084186, W39183, N34327, W48615, AA335074, AA083852, AA759004, AA127204, BF931010, AI475155, T16186, N68154, AA282950, W76502, N52965, BF365527, AI492630, N23350, N44219, AA599858, N90243, AA441795, BE256979, AA954074, W72554, AA001366, AA426436, AI150591, Z17342, W48848, AA084150, R17788, H73679, AI244828, BE092078, T34091, BF927370, R15766, R53782, Z43180, AA812472, AA393722, AA992902, AA854973, BF310652, BF330975, R58476, H60664, N80612, R16270, H47840, BF525491, Z17375, R16404, BE891319, H65124, H92922, AI806053, R51356, BE858690, BF918312, AA129474, AA703655, AI273223, AI926270, BF963065, AA329148, BE774606, H92802, BE769225, R20399, AW795296, AI049843, H56558, BF090852, AW607377, R41931, H69496, AA335073, H59850, R94332, H84519, AA083896, BE164310, AA808483, BE710894, BF834037, H73731, R51462, AW674398, H56559, AW380175, BE799336, BF869029, AI886687, H66590, AV729890, AA503185, BE936384, AI298510, BE881294, AW270029, BF923491, R12667, R02834, BE007732, BE007738, BE007723, BE007724, BE007734, BE007727, BE007730, BE926092, BE007729, BE538437, BF806049, BE796361, AA911021, BE926100, AV747567, D20966, T24827, BF926145, AW995423, AI559973, AI590813, AW995373, AW966839, T08376, AB011173, and AL031428.

HSHBF13	265	778087	1 - 933	15 - 947	AI862453, AI569794, AI800423, AI590769, BE13614, BF982756, AI859970, BE301273, AW170296, AI811162, AI653897, AI569595, AW467390, AI652421, AI653548, AI739622, AW276481, AW473524, AW964953, AI963681, BE939495, AI657090, AI624062, AI701477, AA847299, BE892957, AA973284, AW300934, AA884426, AW007927, AI671878, AI150198, AI597690, AW772043, AW205152, AA687348, R48787, AA398522, AA132853, AA639818, BE856046, H16789, AW079395, T72002, AW518068, AW510732, AW025171, AI283535, AI028345, AI208208, BE386015, AI204112, AI869844, AW235822, AI521850, AI917108, AA297158, T87641, BG236404, AI760407, F09217, AA835697, AW009374, AI200294, AW136297, AW578241, BF983084, AA477930, AA609623, T51196, AA292757, BG181058, AA298687, AI222636, T03597, T80196, BF348744, AA046518, AI648526, AA046693, BF591885, AI784267, AI656095, AI539547, AI673418, R50052, AA160800, AA927052, AW196234, BF315318, AW194685, AI283529, BF222991, T64280, T51302, AW384442, AW274852, R50051, AA292781, BF358771, BE793372, BE304649, AW392818, BF804025, BG025169, AI247295, AW812132, AW812133, AW812134, AL527121, BF762485, AK026044, AF288687, U21720, and AF060515.
HLYCQ80	266	778291	1 - 702	15 - 716	AL522429, AL519857, AL525166, BF795119, BF953602, AL522428, BF889168, BF953600, AA417315, BF950828, BF953606, AA363724, BF953605, AA416846, BF950827, BF953597, BF790896, BE219962, BF950833, BE254979, BF953596, AL525165, BE738260, AA442345, AW149619, AI822093, AA401532, AA502835, and AC004024.
HE2OF81	267	778504	1 - 598	15 - 612	AA463471, AI590283, AI479619, AW170566, AI356285, BE671701, AA722942, AW469714, AI279424, AI870381, AI475890, AW105033, AA443030, BE646579, AW135396, AI357242, AI860938, BE856482, AI692574, AI420407, BF948785, AI566567, AI306543, BF929181, AA748866, AA328301, AW204848, AW136075, AA729225, AI251746, AI698815, AW137312, AA865160, AW206983, and AF069736.
HTEBB88	268	779291	1 - 617	15 - 631	AA431834, AA412657, AA383405, BF979852, AA399262, AI970493, AL042749, AI026627, AA431430, AA412489, and AW589908.
HWHGD8 2	269	779607	1 - 793	15 - 807	BE149572, BE149762, BF927988, BE710647, BE706463, AW860458, BE149306, AJ005585, AL355984, and Z70023.
HWADH6 7	270	779663	1 - 672	15 - 686	AU142678, AA305711, N48526, BE888778, AK023990, AB032948, AL359929, AK025302, AY008271, and X69942.
HKADC82	271	779838	1 - 518	15 - 532	AA256009, and Z73417.
HHESK83	272	780458	1 - 553	15 - 567	AW238796, AI446252, AU133011, BF528401, AU140703, AV748024, W47453, BF034868, AB011164, and AK001686.
HMIAT16	273	780804	1 - 1205	15 - 1219	BF967603, R56740, R12211, AV724882, AW901254, AW902264, R25705, AV725183, BF362604, AW902149, AR079035, AB033015, AB050265, and AL157830.

HSLJK83	274	780819	1 - 751	15 - 765	BE795727, AA192481, AW304932, R50904, AI475447, AL046510, BF771836, BE763340, RI7624, BF037534, and AK022629.
HADFW62	275	781376	1 - 508	15 - 522	AW971689, BE173409, BE173585, BE173471, AI766639, BE173481, BE173586, AA446322, AI147871, AI423223, AA446503, BF102702, AU157616, AA641529, AA043190, AW074400, AU156799, BE349039, AA043189, BF677334, AI159832, AI419387, AA627345, AI031904, AI886950, AI934352, BF939730, AA854750, AI619780, AI719353, AW103783, AI097237, AI371803, N62242, BF446754, AI932664, BF966850, AA022728, AI082158, AI027157, AA528304, BE895637, AI033762, AI719873, AA205854, AA459012, AI215871, BE173590, AA846562, AA781300, N32245, N32239, C20624, AA838762, AV734597, AA046667, AI805379, AI571690, H88240, BG152848, AI241774, AA825596, N57339, AA721753, AA369579, AW771347, BF941206, AW827132, AA369411, R44703, AW591353, AW193628, AI687862, BF218355, BF363932, H92698, AW901820, AA326713, BF363979, AA349280, AA830510, BF691477, BF363985, R44702, AI699714, BE701927, BF800094, BF576897, AA256744, BE176885, AA376823, W04679, AV659955, H88016, AF113224, AF208863, AK002102, AC021019, and AL358133.
HOHBR65	277	781821	1 - 598	15 - 612	BG177251, BE392473, BE540551, AV750730, BF795551, BF589465, AW504749, AA385917, BE895666, BG119102, AU127443, and AK022818.
HRABZ84	278	782028	1 - 889	15 - 903	N77440, AL079791, BF332757, AA300559, AU124105, AA249371, AA179324, BE706277, AB014578, and AK023168.
HKABD18	279	782431	1 - 595	15 - 609	BE551045, AI761086, BE467416, AW014459, AI658633, AA157537, AW008399, AW578213, AI214342, AI651449, AI292079, N92657, AI524798, AW517316, AW501719, R19362, AA890687, AA203496, R19361, and AC015853.
HUFAJ06	280	783017	1 - 1085	15 - 1099	AUI23891, BG254072, BF034062, BG026501, BE905914, BE379882, BF575139, BG178012, BE018688, BF666905, BF724896, BE781202, BF969239, BG029993, BE929233, BF035227, BF084153, AI569851, BE897137, BF084155, AA300363, AI868450, BE86832, AV747378, AW082547, BE938831, BE379802, AW601587, BF812290, BE673019, BE926722, AW675134, BF907150, AW975844, AA479256, BG115871, BE258274, AW754116, BF331949, BF001398, BF109908, AW024440, BF111317, BE543712, BF434200, BF222717, AI742737, AI656136, AW467007, BE877085, AA394229, AK001499, AK001492, AK001222, and AL137401.
HDQFV46	281	783316	1 - 999	15 - 1013	AL531039, BF973454, BE727445, BG115169, BG114062, BF684794, BF973606, BE537060, AW969042, AA700020, BF968627, AW206059, AW957238, BF432198, BF980402, AI672358, BE326492, AA916774, BE003525, BE003532, AU151013, BE003523, AA699619, AA827289, BE206364, AU158148, AU152265, AI032726, BE043951, BE747743, AI024492, AI208858, AI375573, AA725543, AA287974,

					AA693821, AA770210, AI240892, AW510399, AI824282, AI684175, AW362905, AA426229, AI049580, AA525966, AI334247, AA262040, AI032993, AA291268, BE328503, AW383419, AA291339, NS9203, BE064374, BF350525, AA504437, AA626831, AA767810, AI188629, W45184, AA993418, AW273123, R60802, BF446920, AI797031, W42659, AI796476, BE741947, AA203299, AI524794, H50988, H18939, AI701999, BE844252, AA782458, AW779035, AV754863, AA480957, AA769274, AA235431, AW021687, BF884832, AA746717, BE242449, AA524731, AA765847, BE064375, BE396252, AA730421, AA370678, AA327714, BE898594, AW957236, BF976418, H51642, H67581, AI215039, AI500031, AI613496, AA259009, BE064373, AI888704, AV717910, AA908871, BE180513, AA362131, AW780116, AA659009, BE931789, AA664580, T97082, BF971670, AA504201, AA778342, BF593055, AW673901, AA291338, AW867029, BF758920, AW383401, AL110271, AK023702, and AK025390.
HMEKH64	282	783318	1 - 1183	15 - 1197	BF971670, BE266703, AV717910, BG253151, BE747743, BF976418, AW386331, BE844252, AL531039, AI929214, BE894133, BF973606, AU130281, BE148644, H67581, AW867029, BF684794, AA362131, AW605843, BE180513, BG114062, BE537060, AW605842, BE257623, AU136976, AW579730, BF973454, AW379329, AI888704, BG115169, BF350024, AA327714, H50988, AA291338, AA504437, AW379315, AA203299, T97082, BE727445, BE003525, BE003532, BE003523, AW340421, AA259009, BF980402, BF364187, AA626831, AW673901, BE396252, AL531040, AA480957, AA235431, BF758920, AW675069, AW957238, AK023702, AL110271, and AK025390.
HTLEB85	283	783631	1 - 541	15 - 555	R09977, T05374, AF184921, and AL110245.
HCE4Q82	284	783713	1 - 1504	15 - 1518	BF979576, BF685876, BF237525, BF980213, AI962634, AI123829, AI675169, AA446522, AI123819, BF439625, AA846261, AA812673, AW013867, AA398356, AI248400, AW952312, AA435895, AW268607, AA293782, AA609058, AA398858, H92236, R85058, AA928382, H23595, AA446343, AA932275, AI143864, AI867690, R86854, R86872, AV728555, AA319860, AA609577, AV728680, R85059, AK024750, AI400877, and AJ400878.
HODEC95	285	783883	1 - 693	15 - 707	AL121655.
HCBBA47	286	783892	1 - 2015	15 - 2029	AV725226, BE619022, BG178817, BF241370, BE895080, BG113258, AV715766, AV733942, AV726793, AI036345, BE875631, AL036344, AW955920, AW954961, BF512650, BF740018, BF238340, BF794067, BF438225, BF127410, BF541953, AA702956, AI816856, AW772335, AW340628, AI871692, AA421023, BE739050, AW271529, BF244204, AI702180, AI147255, AW501666, AA227625, AI283417, N30286, W73960, AI083587, AA436206, BG180607, AI694900, AW578422, AI349323, R78863, AI191671, AA281451, AA693549, N42007, AA586311, AA321680, AA974083,

HSKEQ61	287	783939	1 - 2455	15 - 2469	AI352703, AA628839, AA636123, AI279737, AA469953, AW589576, AW467404, AI352647, AI022057, R64528, AA319968, BE695706, BF154492, AW852265, H30815, BF743115, R68417, BF214618, AA442126, T54284, AA436205, BG122218, BF327469, AA745658, N63217, N63229, R68418, AA747151, R79350, BE003010, AI678653, AW970097, AA528692, AA683590, BE814850, BE814851, W79264, T54391, AI270355, AA837348, BF904237, AA585295, BE782466, AL008718, AL389951, and AL050007. AU135920, AL517209, AU131691, AU130251, AI972528, AI688414, AU123251, BF109719, BE546692, AL517208, BE881139, BE890805, BF793401, BG120087, BF057427, BG250623, BE048738, BE882401, BE613577, AI640498, BE540307, BF343742, BE614292, AW151747, AW958404, AW152397, BG035353, AV682987, BE883215, AV703155, AU128516, BF666236, AW966381, BF106340, AI480333, BE328670, BF218009, BE836374, AU127593, AI685403, BG251542, AI669680, AU152244, AA085541, BG253320, BE964277, BF131711, AW514294, BF244439, AI188466, W44462, AI123344, BE206579, AW627436, AA442555, AA890256, N44947, AU150796, AV705529, W44423, BE770328, AA593805, AI080628, AI569249, BF542143, BF510041, AA622751, AI130841, AA314696, AA621315, BE779242, H72468, AU156368, BF372598, AA559031, BF507523, AW630453, BF245794, AW408163, AI357067, AI263453, AI042577, BE876481, AW517811, AI246358, AI292246, H71650, AI148526, BE222791, AI050839, AA311995, N31165, N51572, AV701651, AV734456, BF733585, AA677757, AA680365, BE925424, AW006059, AW408752, AI003722, AW373632, N26323, AW195678, R70589, AA722821, BE843463, BF447496, BF358328, AV707275, H71651, N39766, H12581, AI783986, H48743, AL041259, R25830, BE552464, H12582, N67428, AA207208, AI863535, AA379962, AA374360, BE825711, AA298251, AA296959, AI745701, H72869, T84011, BF676229, AA380015, BE177759, H86954, BE177295, AA248786, R46828, AA300956, N86979, AI927507, N50351, T52668, H58749, AA861220, AA298872, N75389, W01901, W88430, BF131193, AA694396, T52667, AV710681, BF828638, H48744, BF885210, T84010, BF358281, BF229289, W78815, AA77519, C01970, BF247057, W80714, U97067, AF030233, AK022926, AF006070, AK022539, AF080071, AK022834, AF135021, AF006071, AL050016, AF134888, AF134877, AF134872, AF134871, AF134873, AF134876, AF134879, AF134884, AF134881, AF134874, AF134887, AF134880, AF134875, AF134878, AF134886, AF134885, and AF134883. BE618503.
	288	784039	1 - 559	15 - 573	AW842475, T30776, BF184770, BF207585, BE866760, BF185766, BF572915, T34250, BE569159, AV710343, BE865603, AA307732, AV710294, BE748463, BE380139, BF695555, BF575624, BF693664, BF242001, AA224139, BF542130, BG164206, BF574646, BF244208, BF978686, BF665201, AV757001, N31447, N28523, N24472,
HWEAC64	288	784039	1 - 559	15 - 573	
HSDFQ43	289	784159	1 - 419	15 - 433	

					AA315977, N25832, BF126194, AV755045, BF030653, AA315741, AA315704, AV762479, BF726845, AA306451, T35600, AV682139, AL037057, T36026, BE566339, F13092, AA308179, H11162, BF213491, AV742374, BF212261, BF215659, BE564609, BF970245, BE748359, W52454, BF210592, BE739340, BE559897, AA305608, BF671423, T36097, BE565736, BE569026, BF671079, AA313248, BF208645, BF208098, BF573520, BF214865, AA528272, BE974004, BE892418, BF382909, BF105294, T79893, BE566468, BF243468, R27532, R27490, BF105175, AA313381, BF030902, BE569069, BE379860, BF218037, AV710851, BF666664, BF692398, BE380152, BE569047, BF102492, BF691366, BF691690, BF576905, BF669240, BF031549, BF214357, W46663, BF666299, BG260730, BF184430, AL525947, BF218488, BE777709, BF574204, BF699197, BF574730, BE566636, BF666336, BF977067, BF976775, AL531298, BF670590, BF980810, BE566596, BF242973, BE276083, BE560474, BE783331, BG168761, AL533096, BE889996, BE564618, BF691316, T75448, BE887893, BF693552, BF694311, BE270115, BF694884, BF694756, BE380082, BF382504, BF242232, BF790806, BE731980, BF131875, BG171607, BF105051, BE777683, BF105035, BE568726, AV716454, BF210268, BF671572, BF028449, AV695106, Z45665, BF696872, BF030848, BE614039, BF029009, BF211214, BF219340, BF241869, BE565114, BF541353, BF103739, BF131647, BF243185, BF212175, BF671032, BF210262, BF105111, BF979150, BE564089, BF382617, BF676332, BF242784, BF217361, AL037133, BF667363, BF212615, BF671957, BF130546, BF673943, BF541664, BE777623, BE612838, BF242415, BE379899, BF541325, BE564103, BF690924, BF130379, BF979252, T74479, BF669316, BF576944, BF211705, BF184123, BF209838, BF240502, BF243012, BF698615, BF690720, BG168318, BF241242, BF247451, BF699543, BF219357, R71434, BF693543, BF216606, BF212659, BE565400, BF541652, BF030955, BF211412, BF212894, BF103815, BF240227, BF212081, BF030775, BF693533, BE565474, BG111409, BF696532, BF541362, BE868846, BE737831, BF790812, BF571542, BE564290, AW328744, AW328643, BE565162, BF215730, BF243317, BF693979, BF214143, BF743934, BF213920, BF103609, BF241131, BF028189, BF106298, BE566915, AV728134, BF573256, BF240970, BE865999, BE866322, BF208517, BF208458, BF673015, BF211503, BF211464, BF105870, AF145385, AF077034, AL110233, and AC004067.

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HLDEM50	292	784930	1 - 1497	15 - 1511	AW970247, AA749081, AW970328, AA242881, AA534752, AI767158, AW134505, BF001990, AI222246, AA766655, T81312, BE001722, AA764820, AA767994, AA282886, AA983324, AW262486, AI200540, T81840, AW994525, and BF746861.
HHEDH33	293	785013	1 - 527	15 - 541	W07333, BF966356, BF345047, BF966166, AV706030, AL532785, AI929589, AL533353, AV723356, BF791175, AV723613, W37917, BF967376, AA306202, N78175, AA355342, AI146458, W77834, AA010474, H38038, N72450, AA169869, H50965, AI655965, AA312530, AA354371, BF678700, AA805036, AI566732, BF102698, AV761465, AI948482, N64212, BF214204, AA306939, AI760966, AA515863, AA347822, BE242703, N31260, AI953952, W16828, AA328013, AA648335, R57511, AA325779, AA329322, R50284, BF213966, T93146, AV740787, AA357064, AA356670, AA328151, N42259, AA306801, R01594, BF240302, AA768073, AA285240, AA328907, W72197, BF511262, AW001742, BF214042, AA515854, BF929192, AW972835, AA283306, AI077300, AW338181, AA356764, N32815, AI015666, BF057072, AI472098, AA742803, AA677584, AW301679, N58011, AW105514, AA730357, AI128690, AV735482,



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HAIDL86	294	785497	1 - 450	15 - 464	AA330427, AW961567, AA207037, AW612514, AI972017, AL044564, AF097027, AF097026, AL137064, AC007394, AF290421, AC002992, and AL078590.
HTEPF14	295	785958	1 - 696	15 - 710	AA429918, and AA813674.
HOEDD04	296	786659	1 - 1140	15 - 1154	AW299799, AW084139, AW242363, BE552186, BF112070, AI823595, AA931217, AI625868, AA741511, AI015177, AI640397, AA706004, AA582716, AA706025, N62554, AI421672, AW139031, AW205790, AI039797, AI983142, AI094692, AW770391, AA599803, AA111973, AW770810, AI612830, AI910734, AA974688, T34710, AA204852, AW380711, AA083691, M78458, AI817638, N79222, BE220738, BF760186, AW380703, AI609833, AI360898, BF740075, AI381705, AW194879, AW864253, AI094606, AA708986, AA748372, BF091355, BF736748, AI580218, BF943536, D19947, AI917379, AC023154, and AK024713.
HODBK89	297	786830	1 - 517	15 - 531	AI909710, AL519788, BF205386, BG025642, BE165754, AU134287, AW853154, AI203203, AW235417, AI633942, AA808812, BF437493, AI198588, BE270126, BF680360, BF681547, AW149313, AA702729, AL040061, BF846782, AU117305, BE384952, AA576336, BE147416, AA613345, AI700109, AV655096, AI963720, AW002350, AW965008, BF964993, AV758600, BF030591, AL119984, AC013357, AK005579, AB037772, AL137699, AK001368, AC009516, AC018751, AC011442, AB023049, AC008079, AL096840, AL121578, AP000555, AC000353, AC005180, AL139342, AC008403, AC005182, AL049709, AC008745, AC007308, AC005736, AC005377, AC003101, AC002558, AC005747, AF111169, AC006539, AC002991, AC008521, AC008651, AX039602, AC020917, AC005695, AP000688, AC007011, AC006345, AL049694, AP001724, AC011455, AC006004, AC004659, AC007263, AC011484, AL121601, AL049840, AC023105, AC009247, AP001732, AC007279, AC004890, AL109865, AC004865, AL031662, AC006965, AL136300, AL110502, AP000088, AC016025, AP001692, Z97056, AL159977, AC074338, AC005527, AL033504, AL049540, AL136234, AP000362, AL445217, AC005922, AL031276, AP001714, AL096791, AC079603, AC011811, Z95114, AC009756, AL162430, AP000553, U89337, AC000003, AC020904, AC005098, AL121752, AL008721, AC005988, AC007383, AP001752, AC011475, AL033529, AC007845, AC006143, AL110115, AL031293, AC010789, AC005520, AC004166, AC005914, AL096700, AC003109, AF235098, AL355497, AL121825, AP001696, AC004638, AL049871, AL355385, AL008629, AC004477, AC005859, AC003091, AC002430, AC002301, AL445490, AL049759, AP001039, AP001685, AC007384, AL391122, Z86062, AC004867, AL139350, AC010422, AP000114, AL139382, AC010877, AC005250,

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HMUAZ89	298	786878	1 - 2011	15 - 2025	AU119217, AU142997, AU126470, AU137552, AV707724, BE885641, BE882395, BF978996, AU133265, BE880546, AU145615, BF768553, BE885051, BF978238, BG109892, BF030417, BF979389, AI025750, BE890586, AU160170, AI476238, BE907761, N24914, N22841, AW239265, AW614479, AI921501, AA147622, BE769266, AI609379, BF675563, AW630231, BE940553, N28649, W24887, AA406583, BF899751, BF058794, H83590, AV690969, T71923, H82720, N36040, AU118939, R81776, BE890462, T87819, BF923426, R81524, AA147660, AA410263, AW615045, N46516, BG112667, BG035201, AA808254, AU123447, BE930817, AA248172, BF130062, BF244860, BE931706, BF977853, BG008198, BE930818, AA389677, BF980328, AC007541, AK024021, AK022770, AK021783, AK001731, and AL117658.
HISBBB92	299	787263	1 - 1329	15 - 1343	BE675230, BF058529, BE674332, AW614474, BF058378, BE673956, AI927890, BE348830, AW517448, BF195636, AA393795, BE348840, BE670412, AW194958, AI569662, AI339198, AI298526, AA393737, W32966, AI362851, BF056919, AA421844, BF940522, AI015297, AW206859, W96354, AI720718, AW135892, AW339997, AI017522, AL121261, AA720627, BF224376, W96353, AW382742, AA808037, AI203573, AA406312, AA836578, AI377825, AW382721, AW382720, BE348820, T06376, T65425, AW752740, AW087789, T35605, AF012360, F09476, AA346740, AI650529, AF012384, AI073493, AA974605, AA884921, AW771989, BF214235, AA742618, AI147995, AI142281, AW798213, BE177396, BE709258, BE709249, BE177395, BE709252, AW662013, BE177412, BE177405, AL207115, AI216652, BF433408, BF116085, AI057029, AI073990, AI139633, BF035385, BE884638, AA909122, AF208855, and AC005943.
HHBGJ75	300	787450	1 - 566	15 - 580	BF967514, AU134850, AL526580, AI815450, BE302873, BF980663, BF968709, BE391049, BE389214, BF237784, BE263463, BE254555, BE514230, BE784473, BE548313, BF663215, BF346762, BF525597, BE895887, BE729721, BF980558, BE544002, AA082886, AA551276, AW327921, BF339883, BG168759, BF247777, AX011651, AJ005896, AK023433, AF196779, and AF229636.
HDPY22	301	787466	1 - 595	15 - 609	AI762801, BG108111, and AC004990.
HBBBC20	302	787587	1 - 1293	15 - 1307	AW242755, BE539127, AL079357, BE274889, BE780196, BF213445, AV760694, AL134812, AI765812, AI061435, AL037306, AI041196, N29256, BG120268, AI990008, AI678128, BE384590, W45589, AW615370, BF966835, AA889860, AA702333,

					AW172266, AI808427, AI028431, BG110600, AI018204, W27650, AI469442, BF108748, AW337992, W45588, AI611633, AI469430, AA309624, AI302403, AA992610, AI037907, AA769552, AW294502, AA627210, AW613678, AI902952, AA376458, AA210868, C75376, AI052194, AA344419, R55613, BF917319, BF917393, BF111418, AW238413, AA854386, AA053729, AA835816, BG036729, D81811, AI085052, AW769528, AA054679, AA813667, N20543, AI200075, BE897758, BF081943, BF671216, AA056435, AW663287, AI816805, AA643494, AA643488, AI682727, AI619999, BE813101, T83597, AW265138, AA724224, and AF001175.
HMELW0 8	303	788955	1 - 1232	15 - 1246	AU131931, BE536781, AW402730, AA307816, BF511363, T80567, AA312254, T08529, H16029, H15919, BE812792, R50588, BF903474, H10920, T19093, BE815585, BF921422, BF903459, N22528, AB018268, and AK023218.
HTPDL90	304	789115	1 - 1433	15 - 1447	BF980029, BF979952, AA861754, AI041049, AA974148, AI025824, AI015271, AA973722, AI262750, BF507838, BG037192, AF012394, BF979566, AF260330, AF269223, and AL138721.
HTACZ08	305	789276	1 - 1333	15 - 1347	BG031756, BE743909, BG163922, BF568433, BE379243, BE786070, BE392183, BG105120, BE788274, AA280226, BE280190, AW967679, N35741, AI857402, AA477013, AA835014, BE164855, W93807, A W778886, AA704804, AA921827, BF569835, BF570343, AW403371, AA381259, AW967685, AW403003, AA292772, BG235910, AI079554, AA321629, AI143216, AI763030, AW243050, AI765833, BE830851, AI884606, AA705078, AI949689, AA252009, AI335326, AI338729, AA983569, AW629265, AI963754, AI281191, AW294001, AA279011, AA767672, AA476900, N49211, AI241107, AI392855, AA557282, AI032953, AI087153, AA251779, AI636442, AA249593, AI376580, AI823966, BE712575, W57586, AA731007, AW194627, N50263, AA278476, AA336093, AW963903, AF172244, AK025973, AF131220, Z74023, and AF188706.
HAGEC91	306	789377	1 - 608	15 - 622	AW763486, AI914741, AW861651, BF694382, BF575851, AW857983, AA847414, BF801065, AI904812, AI963431, and AU153706.
HTTCB23	307	789555	1 - 1810	15 - 1824	AU127415, BE877289, BE742573, BF036861, BG029551, BE886701, AI859249, AI742547, BE780605, BE740104, AI768395, BG167281, BE178193, BE177835, BE178349, BE783927, BE178194, BE393733, BE513127, BE879057, BE207514, BE514898, BE276173, AW364748, AU154706, BE302681, AW513821, AW955752, AU148735, AW364787, AU147737, AI820072, AA807512, AI672793, AI138220, AI624654, AI538330, AW837961, AU150892, BE312071, AU149295, AW263238, AI341822, AI077392, AL134933, AA040573, AA598412, AW135642, W35215, AA629672, AI680161, AI358554, AA848068, BF561284, AA936121, AA916037, AI306440, AI313477, AA972982, AW800651, AW193945, AA773533, AI200664, Z39803, H62189, AA040671, Z43743, AI394357, T85669, H73295, BE393061, N74147,

					<p>             AT955026, H62190, AI189225, W04314, AA830115, BE208417, AA916068, T51503, AW800612, AU124977, BF678009, AA587433, AW626572, AW062989, T34513, AF280096, AA332026, AW002203, BF803737, BF956101, W68507, BE836040, AW991222, AI936216, BE893602, AA323146, AI799875, AV660965, AW081686, AA872046, AI524535, AA366999, T47876, W23625, AW384787, AI446677, AL040170, BE161650, AU125685, BE280147, BE161623, BG117395, R07637, BE902901, AI611580, AI611471, AI345528, AI559978, AU133352, AA747668, AK001741, AK022709, and AF291064.           </p>
HYAAL21	308	789607	1 - 1868	15 - 1882	<p>             AL514580, BE908546, BF694943, BF692909, AI655972, AA523409, AI809237, AW328507, AW137703, AI377032, AI872211, AA523391, BG231563, BG032081, AI381901, W56565, AI248517, AI217725, AA009534, AW328508, AI150552, AW769415, W92392, AW905043, AW613735, R95131, BF509506, AI241274, BF590059, AA609120, H67840, AW194863, W92335, AA580479, AI912966, AI142666, AW243314, W56787, Z25384, AA531424, AA620439, AA334258, BF593355, R08496, N76255, AI678791, F17380, AI217148, AW057531, AI825787, and AL139395.           </p>
HITLHY91	309	789660	1 - 966	15 - 980	<p>             AI078157, AI597699, AI761942, AI025092, AA564746, AI243129, AW954966, AA971785, AW242550, T70580, AA865861, AA320319, AI669433, BG032349, H49369, AI795962, AI744837, AW960465, AW966333, AW966399, D58283, AW975613, AW962245, AW975618, D80164, AV699927, AW966062, AW949654, AW966053, D80133, AV721386, AA305578, AW960473, AV719468, AV718800, AV718707, AW966400, AW966054, AV719783, AW959597, AW965177, D59467, AV720464, AV724520, AW959570, AW965175, AW966531, C14389, AW966022, AW966534, AW966041, AW966075, AW973445, AW964477, AW966065, AW966013, AW965163, AV719557, D59275, AV720150, D80195, AW973307, AW975621, AW978648, AW966029, AV720791, AW966050, AV719188, D80227, D59502, AW964532, AW965185, AW965197, AW962395, AW959062, AW949641, AW964468, AW966398, AW973334, AV719822, AW978634, AV722801, AV718692, AW966059, AW973490, D81026, D80269, D51799, D50979, AW973474, AW959799, D59859, D80022, C14331, D80166, AW966330, AW973473, D80043, AA514188, D80188, D51423, D59619, AW978661, D80210, AV720616, D80391, AV720151, AW973482, AW960553, D80240, D80253, AW973541, AW966030, AW958992, AV700229, AV718489, AV720203, AW964756, D59787, AW959136, AV699550, AW962082, AV719324, AV718440, AV718938, AV720028, AV718633, AW959628, C15076, AW975605, AA305409, AW965196, AW973485, AW965184, AW959202, AW973488, AV720211, AV718931, AV720878, AV718844, AV718770, AV720731, AW966332, AV699447, AW966380, AW958993, AV723927, AV699866, D81030, AW956434, AW964488, AW949646, AW949656, AW949642, D80038, AW966369, D80248, AV723097, D80212, D80366,           </p>

					<p>D80522, D80193, D80196, AW966388, D80045, D80219, AW965158, AW949629, AW949632, D51060, AW966385, AW966386, AW966331, AV720812, AW949658, AW966378, D59927, AW966368, AW966397, D57483, AW973330, D59610, C14014, D80378, AW966043, D51022, AV720533, D59889, D50995, AW966032, AW960532, D80024, AW956397, AW973447, AW959469, AW964737, AW960454, AW959582, AW949653, AW949645, AW949633, AW949631, AW949643, AA514186, AW949618, AW949657, AW949655, AW360811, AV701839, AW752082, AW753053, AW177440, D80268, AW966023, AW966389, AV718530, D80302, D80251, D80241, AW973465, AW966379, C14429, AW178893, AV700889, AW960504, AW960564, AW965176, AV699746, AW949630, AW966329, AW966377, AV718487, AW377671, AW375405, AV718681, D80439, AV719913, AV654329, AV699669, AV655880, AV701004, D80247, AW975623, T03269, AW179332, AW960570, AV719628, AV699652, AW177731, AF139813, AF084557, AC003025, AC004228, AX027925, AX0333851, AR070327, AB028859, AJ132110, AR087649, A84916, AX047063, AX047064, A62298, A62300, AR008278, AR018138, AF058696, A82595, AX021518, AR060385, X67155, Y17188, A94995, D26022, Y12724, AX035434, A25909, AB002449, AX028130, AX020191, A67220, D89785, A78862, D34614, AJ302649, AX020190, AR008443, AX047062, D88547, I50126, I50132, I50128, I50133, X82626, AR016808, AR066488, AR016514, AR077702, AR060138, A45456, A26615, AR052274, AR074139, Y09669, AR025207, A43192, A43190, AR038669, AR066487, AR074136, I14842, A30438, AR066490, AJ294956, AR054175, D50010, I18367, Y17187, A63261, AR008277, AR008281, AF260572, X64588, AR008408, AR091537, AR062872, A70867, AR093385, AR016691, AR016690, U46128, AR074545, AB012117, AX015396, I79511, D13509, A64136, A68321, AR060133, X68127, AJ287395, A85396, AR074141, D88507, AR066482, AX042372, A44171, AR088705, A85477, I19525, A86792, X93549, U79457, AF123263, AR032065, AR060382, and AR008382.</p>
HUTAD91	310	789688	1 - 499	15 - 513	<p>BF965807, AV685993, AA150787, BF971054, AA147514, AV683322, BF688513, BG107778, AA099345, AV724899, BE812238, AW975316, AF083068, AX008894, AL050034, and AC006255.</p>
HKGDE58	311	790091	1 - 518	15 - 532	<p>H12041, R13858, H05358, Z46111, T94956, F07044, F05720, AA454139, AI526738, AA287162, F05717, AW601999, BF575540, AA448686, AW373077, AK001328, AL136125, and AL122084.</p>
HBIAW78	312	790219	1 - 1037	15 - 1051	<p>AL514332, AL536830, AL535522, BG113578, BE790102, BG251666, BE274244, BE544087, AU119954, AV750996, BF527939, BF961404, BE006066, BE144607, BF215713, AA489325, AV647447, AA306990, AA322361, AW955025, AA146767, BE147938, BF853343, BF238369, AA402007, R25971, BE865440, R29542, AA503433, BE865363, BE618234, W88970, BE618770, AI567713, BF694101, AV646465.</p>

HTOIC11	313	790634	1 - 902	15 - 916	AV646618, AV646651, AF078849, AF181992, and AK001081. AL523818, AL515916, AI003763, BF853876, AI884669, BF341886, AW964073, AA257165, AI701716, AI668925, AA346322, AA642712, AI934554, AI401259, AI363419, AA715044, BE825965, AI611190, AA760750, AW140054, BE825961, AI522818, AK025955, AK022743, AI031716, and AL031008.
HINTRM40	314	790790	1 - 432	15 - 446	H09686, AL037822, R35089, AI037802, AV752654, AV754822, BF212250, BE564130, BF967422, AU119704, AV753730, BF184625, BE168318, BF213048, AW296231, U96750, AF202543, and AK021882.
HSKAY30	315	790807	1 - 1719	15 - 1733	BG254949, AA523696, AI693488, BF983882, BE783010, AW082970, AA847735, AA504846, AI525023, AW771022, BG023824, BG260412, AA331650, and AK024639.
HSSIN12	316	791489	1 - 491	15 - 505	BE744656, BF875090, BE736886, AA347493, BE837723, BF772194, BE837781, and AB002335.
HTFBG93	317	791501	1 - 470	15 - 484	AL522953, BE790527, BE394934, BE791897, AA769247, T97494, BE837545, and AL031320.
HCHOO84	318	791776	1 - 1250	15 - 1264	AL530086, AL518462, BF435744, BF447607, N62931, AU147014, AU150965, AW069065, BE813285, AA908771, W60768, AI884492, BF939732, AW341210, AI870977, AW952157, AI333834, AW138263, AA971553, BE218074, AI921995, AA039992, D60225, AA039937, D60356, AI741709, AI088942, AA970111, AI151230, AA825342, AI191038, AI285234, N29706, BF221801, AI032842, BF509341, AA705221, R37647, BF476232, D60227, AI951862, AA854144, N56713, D45331, AI186560, D81526, AA319580, D60224, BE550645, T98202, D81364, R40429, T23823, T98203, AA091871, Z41754, F04521, R25601, BE085502, F32155, R26997, R63501, F01808, AW079908, AA910798, AL514129, AW274192, AL514919, AL513755, AL514473, AL514627, AI620639, BE047852, AI537677, AL514691, AW827289, BE048071, AW673679, AI491852, AL513907, AL514015, BE018334, AL049085, BF527014, BG031815, AL045500, BE895585, AW087445, BF341801, AL513991, AL514791, BG164371, BF812933, BG120816, BG180034, AW150578, BF338723, BE876033, AI702406, BF970449, BE874133, AW827276, AL514063, AL040243, BG058398, AI815855, AI536638, AI499463, AL121365, BG252040, AI275175, AI439745, BG118199, BF792469, AI524671, AI433976, AI269862, BF795712, BE963035, AI500523, BF791874, AI433157, BG252929, AI539771, BE047952, AI500659, AV682521, BF726297, AI815232, AI590227, AI284517, AW071417, BF792961, BG179993, AI866457, BG036846, BG032208, BF038131, AL043981, BE887488, BE904178, AL514047, AL513553, BF812438, BE888745, BE877769, BG163618, C16221, AL513757, BF344031, BE047738, BF727092, AI284484, AI802542, AI513763, AI624279, BF794994, AI554484, BF726322, AI612913, AI620284, AI491776, BE047737, BG178130, AL514721, BG257535, AL513693, AW827249, BF971016, AI636445, BG110517, AW104724,

AI637584, AI857296, AL121270, AL513631, AI539153, AW151485, AI564719, AI624206, AW008048, AI630928, AL514087, AI619502, AL515413, AW026882, AI440239, BG112718, AI590415, BF812938, BE905335, AL513597, AI922901, AV717299, BF793324, BG249582, AV758209, BF812961, AI536685, AV735353, AI064830, BF868489, BF983030, AI610402, BG222103, AW071349, AL047763, BF726001, BE12767, BF970731, AW129659, AW151138, AW117882, BE619240, BE894455, AI783504, AL045266, AI251485, AV757455, AI583065, AI521012, BE875407, BE048081, BG026194, AI445237, AL119791, AI318280, BE612435, AI926790, BE048135, BF725868, AI627360, AW827175, BE048179, BG034554, BG168185, BG110684, BG260037, BG113662, AI571909, BF339594, AI349598, AL513999, AV734747, AL513943, AI828682, BF968205, AL513911, BG109270, AK026858, AK001449, AF119899, I89947, I48979, AF314091, AL110221, AF113694, AF090943, AL442082, AF111851, A08916, AL359596, AL133016, AF017152, AF116646, AF116631, I89931, AF116691, AL050138, AL137557, AF118070, AL133075, AL157431, AL133557, AF116688, AK027096, Y11587, AF090901, AL389982, AL162083, AK025084, AF113019, AL096744, S68736, AF090934, AL050149, AF138861, AX006092, AL050277, S78214, AK000618, AF130104, A08913, AL122123, AF116644, AF113691, AF113699, AF130092, AF158248, AF111847, AL050393, E07361, AL110196, AK026744, AF130105, I48978, AF113690, AF104032, AK026865, AF119875, AB048953, AF119878, X84990, AL359601, AB019565, AX019230, AB048964, AL133080, AF130059, AL133640, AL049452, AF130082, U42766, AF090900, AK026855, AL049314, AJ242859, AL050146, AL122093, AL133606, E03348, AF113689, AF130075, AF116602, AR079032, AL080060, AK026504, AL122050, AB041801, AK025339, AK026045, AR059958, AL080124, AF090903, AF116649, AL050116, AX019229, AF113677, AF113013, A77033, A77035, AK026741, AK000212, AL162006, AL117460, AL117457, L31396, AF078844, AL050108, AF090896, AL080137, AF091084, L31397, AF116639, AL390167, AF219137, AF125949, AL442072, AK025092, X63574, AL137459, AF113676, AF106862, AF017437, AF118064, AL133093, AX046603, AL389978, AF218014, AB047615, AK025958, AB049758, AL137527, AL122121, AL049938, A93016, Y11254, AR011880, AR087170, AK026592, AK025772, AF177401, AL133565, AL359618, AJ000937, AL049466, AL359941, AF125948, AL110225, AK000137, AF207829, AK026533, Y16645, AK026608, AK000083, AL133560, AK026927, AL117394, AK024538, AB051158, A08910, AK026647, AF119909, X82434, AL137283, AL117583, AF242189, AL137550, AF130066, AK000445, AK026583, AF116682, E02349, AB048954, AK026534, AF146568, U91329, AL117585, AK000652, AF079765, AL162062, AK026784, E07108, AK025391, AK025491, AK026452, AK027113, AL049382, AB047904, A65341, AK026542, AL359615, AL353940,				
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					AK027204, U00763, AL049430, AL049464, AK026959, AK026532, AF130077, AF225424, AF097996, AJ238278, AL049300, AB052191, AF119871, AF177336, AK000323, AL117435, AX026824, AX026823, AS8524, AS8523, AF260566, A08909, AK026086, AF130087, AK025414, AF183393, AX042059, Z82022, AK025967, AL122110, AF130099, AB052200, AK026353, AF271350, AI2297, AF067728, AK026480, AF116610, AX015915, U72620, AK000614, AF118094, A03736, AK024524, AL137271, AL122098, AL133113, AK000432, X70685, AK025524, AF175983, AL137538, AF130110, AL050024, AK027164, AK025484, R16149, R37133, H14818, H92203, N66104, N98707, AA027312, and AA227443.
HE8OX93	319	791839	1 - 663	15 - 677	
HOFMV90	320	792393	1 - 1903	15 - 1917	AL527021, AL526200, AL526350, AI050883, AU134117, BG026013, BG259988, BF033515, AV716795, BE439902, BG179153, AL042527, BF304912, BE538799, BE382941, AU139020, AV712482, AI309770, BF978297, BE645313, BE787686, AV716214, AA311634, AV734344, BE960641, BE961125, BF573492, AW965265, W73750, AA401968, N35837, AI742995, N36891, AW971144, AV733417, AW517372, AV711971, AI041584, AW971147, BF310776, BE247208, AW952915, AA082936, BF928266, AA493138, N99449, AI034056, N46165, R52971, AA401865, H10638, AA402092, BE780248, AA780421, A W608404, AA306957, BG169769, AI590139, H00105, AA083025, AI092921, H08013, AI628586, BE177337, AI935506, BE246188, AW517668, AW373342, AA224056, BE046992, H13899, AA342921, BE770564, AI816971, AU150195, W73812, AA336365, AI522277, D53529, AU154142, BF999012, AU157858, AI375080, AU155221, AW167257, AA155723, N26439, AU144469, A W380567, D62082, AA375213, BE244104, R19026, D81795, AW858988, BE246253, AI095132, N24634, AI277653, AA330335, D61867, AW467017, AI683850, AW293986, AI074423, AI620479, AI738927, AI884521, AI092588, AW104036, AA331411, AI421502, A W189872, AI338456, AA135131, AI753960, A W590921, AI624639, AA471321, AI708833, A W589398, R52972, AA989469, AA721635, AA136512, BF964608, AA090730, BE715023, BF106291, AA045168, AI700880, AW132016, AA620323, AA401653, N88865, T25958, H10639, AI469001, AA889498, R30679, A W759628, D60491, N84400, R44097, AI170811, AI125850, AA248434, AA091440, AA585404, H05034, N71576, T17227, AI568236, A W858995, BF687898, W47457, D29149, H07917, AI929565, AL117566, AK002159, AF046024, AB012190, and AF077330.
HTEFV95	321	792575	1 - 561	15 - 575	AA173831, AA034149, A W962438, AI925174, AA173779, AA366630, AA034150, AA360960, BF309923, AF041449, AF099929, and AK022448.
HETJA44	322	792627	1 - 811	15 - 825	A W836230, BE158913, AA329381, BE167153, and A W856475.
HE2DR93	323	792628	1 - 847	15 - 861	AA418082, BF510463, A W467395, BF854199, BE645470, BE855594, AI952246,



HAJBT15	324	792938	1 - 1382	15 - 1396	BF853588, AI094404, R09112, Z12841, and AF045454. AU131406, AU141725, BG163897, BF347918, BF346907, AU122008, BF975998, BE891861, BF663133, BF664526, AI819377, BG164313, BE617220, BF983352, AW961647, BE617116, BF726997, BF347745, BE384672, BG031017, AU129365, AI831967, AA488219, BF662863, BF725683, BE392172, AA738492, AI640490, AW961648, W22839, AI992171, AA854213, AW163566, BF111424, AW961641, AW163568, AA678324, BF203809, BF711379, BE744165, BG013365, BF109059, F07379, F37155, T56819, AW452233, AA323153, AA044212, AI470388, F28906, AI338151, BF927951, AI671891, AI565261, BE392966, BE545940, AA934966, BF772163, T91185, T53324, T84157, AK022317, and L31783.
HDBAD63	325	793148	1 - 1126	15 - 1140	BE741265, BE312413, BE745699, BE733480, BE737309, BG118733, BF311514, BG120868, BE513907, BE780900, BG163371, AW071761, BF206573, BE269413, BE396552, BE746313, AI831605, AW167551, AW301113, AW080934, BE884756, BE269971, AI871908, BG115974, AI400607, AA610308, BE514333, BE262303, BE269640, BE397496, AA308486, AV710504, AI359438, WI7314, AW006373, BE543973, AA748535, AA613105, AA858196, AA552239, AA808351, AA865656, AA252191, AI206006, AA307614, AI362958, W92610, AA856552, AI223781, AI318256, AA317879, H63355, AA748698, AI313332, AI363160, H08800, AI349795, AI348900, AW268739, AV737162, AI249393, AI224288, AW269073, AA748697, N78942, AI142521, AA775898, AI094210, AW798313, W95235, AI031635, H06255, AA252190, H87140, BE789797, AI640394, AW296500, AI220261, AI246242, BF438631, AA356102, AA767679, AA761033, R36895, AI358153, AW007922, AA811788, AA992865, AA299716, AA953952, BE514515, BF214503, AW451143, F30133, BE041924, BE535691, BF215139, F36531, AA613122, AI583498, AA299992, AA299715, AW192973, AI457450, BF952078, BF206656, BF214871, AW351886, AW351888, BG236825, AI305300, AI308609, BE042236, AI318574, AI345152, C02485, AI311246, AI340868, AI252028, AI284831, AI349755, AW072504, H08877, AA635481, AK026104, AF151076, AC004832, and AC005585.
HE8QH85	326	793204	1 - 532	15 - 546	BG033816, BE906522, BF688514, BE727928, BF038689, BF315341, BF341913, BF692375, AL533958, BE563977, BE384582, BF125330, AW674780, AL527387, BE933599, BE388832, BF685907, BG167409, AW391980, BE734897, BF342476, BE765142, BF724371, BF929837, BE737113, BE890522, AI554624, BF751581, AW401574, W76458, AW411042, AV690680, BF691173, BE385234, AI313133, BF309365, BE892657, BF026973, W61124, AV748279, AA357067, AW360837, AV753587, AV690264, BE729633, BF819088, BE739848, AL138163, C18294, AW753259, AI533091, AA852415, AL526711, BE383081, T35790, BF306138, AL533957, AV750893, AA331917, BE167364, T35980, AI909669, T30710, AA115838,

HAICU52	327	793373	1 - 1136	15 - 1150	<p>AW361222, T32095, D55453, BF793313, BF969633, T35190, Z20579, AL519116, BF689897, BF340874, T08329, BF948641, BE299943, BF969734, AL533092, AA378552, BE394599, BE730613, BF755208, BE930119, BF093266, N56257, AL526677, BE932377, BE891065, BE939262, AL517207, R08104, T84898, N45490, BE870288, AL530651, BF934105, T32049, AW379679, BG167755, BE720471, AA225936, AF128528, AF126181, U92544, AF128527, Z98046, AJ277114, AF148815, A75460, and AF320907.</p> <p>AL526154, AL524709, AL523425, BE544298, AL523426, BF306790, BE544293, BG177191, AL524642, AL524641, AL530280, AL525941, AL524710, AW411029, AW964098, AL528560, AA535031, AI628434, BE677815, AI911127, BF001389, BE669506, AW275368, AW083365, AI459053, AL529164, AI700697, AW991515, W25488, AL529163, AA321496, AW991379, AA357110, AI433067, BG252187, W19325, AI279622, AI638823, AI671554, BG057262, BF307602, BF796767, AW411028, AA894653, AA374390, and AL530279.</p>
HE6BJ49	328	793433	1 - 1949	15 - 1963	<p>AL515827, AL515826, AL515466, AL119219, BG105611, BE780167, AV715361, AL538016, AV650881, BF980128, BF980045, AV650886, BG257556, BE783853, AA524019, BF341382, AI140326, AL515465, AV756884, AV649635, BF979747, AI457836, BG028526, BE884906, AI813685, BE789320, AV711501, AI185629, AA403195, AW028038, AI820046, AI808798, BE395601, AI094821, AA703293, BF979508, BE834481, BE779514, BE178346, BE178031, BE178177, BE539269, AI633143, BF197142, BE178004, AI816930, AI905561, AI096795, BE178023, AA447266, AW273999, AA234459, AI703330, AA706011, AI829576, BE936920, BF966456, AI347915, AI889382, AW173635, AI423124, AA725548, AW172746, AI140084, AA453099, AA236583, AI458404, AI400126, AI131485, AI436783, AI936016, BF576243, AW662463, BF240101, AW196824, AW473640, AI694031, BF512775, AA809134, AA116134, BF433366, W03419, AA976311, AI927986, AW190800, BE718224, AI985477, AW080021, AI458412, AA315065, AI090025, AL532665, AA101072, AA883532, AW467740, AI446055, BE178179, AI888105, W58544, BE543902, AI264004, AW954289, AA453538, AA082742, AA164718, AA642442, BF575440, AI310082, AW162771, AA279735, AW296515, AA448291, AI139289, AI823697, AA448220, BF243182, BF223307, AA227816, AA134131, AI041884, AV708050, AI422542, AI040174, AV655144, AI079649, T79246, BF438880, W58509, AV649699, N52069, AW419337, AI264008, AW296596, AA448431, AI811217, BE220570, AA349640, AI341524, AV757359, H92809, N72857, AA234446, AW050477, N66494, N57501, AA860306, W68441, BE931918, AI282140, AI674801, AV651160, AV649813, AA234068, N91425, AA806011, AW204791, AA614788, AI368226, AA164980, T08107, AA227990, AI284230, BF028962, H97585, AA480805, AW085005, AW768944, H06332, AI636532, AA204754, W47140, AI375979, H18564, R17372,</p>

R68285, AI143372, AI143824, AI350596, N69397, R68327, H58117, AI693361, AI372502, H92810, AI372501, AW161983, T79164, N42644, T86831, BF327067, H84167, AA116135, W47189, R62737, F12159, AV656965, A1014919, AA370192, AI240409, N36508, R62680, T36305, T29921, Z45137, AI283686, AI971207, BF572989, BF382822, Z42764, AI739397, H29421, AA255770, H29328, T33043, C01688, Z40868, AA329363, BF209254, R62627, R37355, AI700917, W68349, H67816, AA810382, N36465, AA206912, F04284, T32343, R09714, T06111, AA678435, T09186, AA838580, F09794, R13442, AA507019, W03079, T30254, AA256964, BF988817, N47646, AW194665, AA448363, AA729248, AW572990, AW515496, H18457, R42723, T36276, T66322, AF125102, AK026613, AF068291, AB041568, I48978, I48979, AL137480, AX019230, AK026784, AF116688, AK026741, I89947, AL122050, AL137557, A77033, A77035, AF119899, X81464, I33392, AF130105, AF090934, AF119909, AF097996, A08916, AR038854, AL110196, AF111849, S78214, AF113013, AK024594, AF185576, AL133606, A08910, AL049283, AX019229, AF130082, I03321, E06743, Y16645, AL133640, L31396, L31397, E02221, A08909, AL389939, AL353956, AK000618, Z82022, AK027164, A08913, AF116631, AF087943, AL117460, AF090901, AK024538, AK026480, AK026744, AK025491, AL110280, AF111851, AX040974, AL050277, AK027081, AK026542, AK026647, AK026462, AL442082, I89931, AB047941, AL122098, AF262032, AF146568, AF056191, AF106862, AK027096, U58996, AL133075, AF130099, U42766, AF155148, A65341, AL137550, AK025339, AF079763, AF260566, AK026528, AR075044, X70685, AK026947, AF017152, AK026927, AK026408, AF116691, AL137478, AI299431, AK025084, AF183393, AR079032, AK025465, AL133560, AL080124, AK027113, AB052191, AF130055, E05822, AF177336, AK025209, AF217987, AL050149, AK000323, AF177401, A08912, AF079765, S61953, AR013797, AL049430, AL023657, AF106657, AL390167, AF111112, X72889, AR087170, AL049466, AJ000937, AK026045, AK027146, AF113222, AF116602, AL110221, AF061795, AF151685, AF130110, AK000614, AB047887, AR000496, U39656, E02349, AK025524, AB049758, AJ003118, AL117440, AF090896, U35846, AL137521, AK026534, AR011880, AF078844, AL122110, AF113690, AF113019, X82434, AL137526, AF159141, Y11254, AF119896, AK026583, AK000137, AL137271, AL049314, AL133081, AK026959, AK025414, AF116646, AX020124, AF090900, AF125948, AL050108, AL050393, AL389982, A03736, AF026816, AF008439, AF130104, AF113694, AL049452, AL050024, U67958, AB048919, AF116644, AK027213, I17544, AL133557, AL122093, AB048974, AK000083, AK026506, AL096744, AF285167, AL162002, AL359941, AF113699, AK000445, AL049382, AX045627, AB051158, AL162006, Y14314, AL050092, AK026532, AL137463, AF067728, AX042059, Y11587, AF119878, AL080159, AF116610, AL162003, AF162270, AB047904, AL137459,				
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HE8TJ39	329	793553	1 - 655	15 - 669	<p>AL133665, AF130092, AF153205, AL157479, AK027160, A93350, AL117457, AL050116, AL133016, A45787, I66342, AX010492, AL050146, AF111847, AL442072, S68736, AL050138, AF067790, AF091084, AF116676, AF113677, AB048953, AB047615, AL359596, AF116654, AK026630, AL359601, AL137529, AB050431, I09499, AF130077, AL137533, AF061981, AL080148, AF208850, AL117435, AL389935, AK026855, AK027114, AK024992, T86639, T98493, R14656, R45634, R63690, H84168, N62537, and N79434.</p> <p>AA644279, AA706993, AA419625, AL377279, AL017956, AA305154, AA552468, AW973197, AA583582, BF035298, F17632, AL361845, H11488, BF928543, AW103973, AA483284, AL359763, AF139625, AC011811, AL158167, AL022476, AL034423, AC011442, AC004125, AC009086, AP000356, AC073316, AC008537, AL022336, AC015651, AL133320, AC007969, AC008985, AC020904, AC009073, AL034549, AL354696, AC002312, AL050335, AC005098, AL354864, AL035419, AJ246003, AC002350, AC004531, Y10196, AC008569, AC006483, AC007151, AC004166, AP000555, AC002400, AC002070, AC008273, AC018639, AL353748, AP001053, AC007537, AL139327, AC009123, AL121891, AL121652, AL121658, AC004966, AC005488, AC002300, AC009145, AC005755, AL139100, AC011464, AL132795, AC008009, AC009060, AC010422, AL022721, AL096870, AC006480, AL034372, Z99943, AF053356, AC004560, AF243527, AL109627, AC002550, AC007225, AC002425, AC016543, AL109743, AC004491, AC005512, AL049576, AC008482, AC009244, AC005911, AL009179, AC007842, AL023284, AL033527, AC010789, AC006241, AC004098, AP001752, AL020997, Z84469, AC016526, AL133211, AP000553, AL049569, AC005183, AC010358, AC011475, AC010311, AC006111, U95740, AC005015, AC006312, U47924, AF139813, AL034420, AC007685, Z99716, AC006966, Z83840, AC004765, AL049832, Z99128, AC007955, AL139396, AC005920, AC003025, U96629, AC005409, AC007057, AF109907, AL022320, AP001727, AC005088, AL031291, AL035086, AC004859, AC002492, AC008736, AC018755, AL121601, AC027644, AC005914, AC018738, AJ400877, AC006071, AC004167, AC005924, AC007325, AL021707, AC011495, AC007956, AL034380, AC005704, AL080243, AL157827, AC011450, AC004973, AC020916, AC004983, AJ277557, AL118520, AC002369, AC006001, AC018644, AC007285, AC005071, AC005520, AC003957, AC007954, AL158830, AL049829, AC011311, AC005081, AC021752, AC005522, AC003010, AC002365, AC024571, AC027319, AC009087, AL080314, AP001725, AF047825, AC007957, AL137162, AL117381, AF001719, AL157938, AL023807, AJ277546, AC007298, L44140, AF024533, AC005103, AC010489, AF067844, AC005832, AL117258, AF003626, AC078889, AC004965, AL034429, AL450226, AC007055, AL022318, AL078461, AL021391, and AC018663.</p>
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HFIBG92	330	793632	1 - 1130	15 - 1144	BF967569, BE740975, AL523168, BG027905, BE899602, BE349577, BF185827, AA722787, AI953947, AA424105, AI525622, BE736451, AA258555, AW872903, AW156923, BE792564, AW268186, BF725541, AA807637, AA026923, AW137707, BE392140, AA634048, AI521022, AI635097, D29498, AA319186, AA926947, AI783924, AW954761, BE676951, BF987322, AA026922, AL523169, AI094096, F32449, BF219494, BF216090, BE273865, AA424054, BF476007, AA330955, AA355059, AW057948, AW243598, AA304588, BF589809, BG151514, AI609125, BG122341, BE676944, AI570736, AA641443, BE140753, BE006404, BF967494, BE815118, BE842856, AW162176, BF725542, AW239215, BE676945, BG035464, BG119105, AF159442, AF097738, and AF159850.
HDPB194	331	794297	1 - 469	15 - 483	AI970509, H23104, N45556, AL040461, AJ003449, AL078614, AL137712, AL139008, AL109748, and AL163204.
HPIAX11	332	794354	1 - 1369	15 - 1383	BF971376, BE879463, BF686451, BF978313, BF345131, BG107146, BE789873, BE156256, AW955131, BE551602, H16422, BE778233, BE177218, BF889194, AA312500, AA491370, H96397, BE706959, AA452643, H00754, AA354863, BE892837, N46768, AA319616, AW971090, AW601929, AA508905, AW601956, T69203, AW601901, BE515196, AI077759, BE763783, AW403746, AI299904, AA894404, BE707609, AW869103, BE079404, BF888077, T77850, AW391033, BF374109, AA778928, BE394658, BE222919, BF447648, AW118121, BE550919, AV753221, BE085498, BE831059, AW070649, AI271452, AK000823, and AL031427.
HBMW9 5	333	795325	1 - 625	15 - 639	AA057799, AV758213, AV744690, AV744662, AV741198, AV742048, AW179332, AW366296, AW375405, AW752082, AW753053, AW177440, AV742001, AV742022, AV701335, AV701043, AV701332, AV701017, AV701248, AV741191, AV701431, AW360811, AW973470, AW377671, AV744012, AW178893, AV742667, AV701125, AV701166, AV701357, AV742430, AV701149, AV741187, AI905856, AV742720, AV744004, AV744006, AV743601, AV701123, AV701130, AV701154, C14389, AW966560, AW179328, AW975618, AW966053, AW966029, AW966075, AW375406, AW966065, AW960465, AW973334, AW966399, AW966531, AW978634, AW378534, AW966534, BF349328, AW966369, AW973490, D58283, AW966022, AW377672, AV744770, AW179023, AW178905, AW966333, AW959799, AW966059, AW966013, D59859, D80022, C14331, AW966041, D80166, AW973474, AW966330, AW973473, D80195, AW973445, AW975621, AW978648, AW966385, D80193, D59927, AV741012, AW975613, D59467, D51423, D59619, AW966388, AW978661, D80210, AW178906, D51799, AW965163, D80391, AV720151, D80164, D59275, AV720533, AW960553, D80240, D80253, AW973541, AW966030, AV719822, AV720791, AW964766, AW966054, AV718489, AV720203, AV718692, AW964756, AW966050, AV719188, AW973307, D80043, D59787, D80227, AW973468, AW966062, AV719324, AV718440,

					AV718938, AV719783, AV720028, D59502, AW959597, AV718633, AW959628, AW960473, AW965177, AW975605, AW966378, AW959570, AV719468, AV718800, AW973423, AA305409, AW965185, AW965197, AW965196, AW973485, AV718707, AW965184, AW973488, AW966386, AW965175, AW966400, AV720211, AV718931, AW962395, AW966368, AV720878, AV718844, AV720464, AV719557, AV720616, AV718770, AV720731, AW966332, AW966331, AW973482, AW966398, AV699447, AW378532, AW966397, AW966380, AW958992, AW958993, AW966390, AV722801, AV723927, AV724520, AV721784, AV699866, AW959136, AW956397, AW959062, AW964477, AW956434, AV699550, AW964488, AW949641, AW962082, AW949656, AW964468, AW949630, AW949654, AW964532, AV699927, AW949642, AV739950, AW959202, T03269, D81030, D51060, AW949632, D81026, D80269, C14014, D80212, D80366, D80196, D80188, D51022, D80248, D50979, D80219, D80522, D50995, AW352170, AV738340, AW973447, AV701443, AV701419, AV701422, AV745080, AV744934, AA305578, D80038, C15076, AV742671, AW377676, AW352171, AV723097, D57483, AW966379, AW966043, AW177731, D59889, D80133, AW178907, AW753041, AW178762, AW962245, A94995, Y12724, Y17188, AX028130, AR087649, X82626, A84916, AX020191, A67220, AX047063, AX047062, AX047064, D89785, A62300, A62298, AX027925, AB028859, A78862, D34614, D26022, AJ302649, D88547, AJ132110, AX033851, AR070327, AR018138, AX021518, AR008278, X67155, AX035434, AX020190, AF058696, A25909, I50126, I50132, I50128, I50133, AR025207, AR008443, AR066487, AR074136, AR074545, I18367, AR074139, A43192, A43190, AR066488, D13509, A82595, AR016514, AB012117, D50010, AR060138, A45456, A26615, AR052274, AR038669, AR008408, Y09669, AR060385, A30438, AB002449, A85396, AR074141, D88507, AR066482, A44171, AR088705, AX042372, AR060133, and AR008382.
HUSI83	334	796477	1 - 1109	15 - 1123	BE299536, AW410054, AA029709, BF725048, AI185838, BG028965, AW993833, AW607584, AW150237, BG236373, AA972593, AW169689, AW090826, AI858996, AI565091, AA761356, AA768292, AI188109, AW614806, AA827689, AI687658, AA908721, AI633546, AI687676, AI287857, AI288342, AW953241, AI290467, AW170763, AI200723, AI318408, AI458268, AI955558, AA677209, AI205277, AW167207, AI951025, AI934191, AI393399, BG028292, AI758328, AI289811, AW798324, AI351976, AW510522, BF593808, BF857062, AA699748, AW367992, AA913325, R02139, F08977, R39345, AA404220, AI914359, AI698406, AA404686, AI911043, AA767506, AA593292, R02435, AA903530, BE300377, AI862968, BF950755, R26023, N26911, BF832096, BF083877, AW939011, BF216118, AA029641, AA350367, AA383715, BG118825, T79981, AI884411, AI497875, BF305629, BF307808, BE645399, AA350368, BE149550, AA323658, and AB028741.

HBGDP38	335	796622	1 - 483	15 - 497	T58354, and T58399.
HTXEC55	336	798103	1 - 982	15 - 996	AL522930, BF446693, AI869988, AW295294, AI871020, AI291088, AA424317, AI922729, AW081155, AI357811, AI683996, T16074, AI802787, AI811165, AA451751, AA683352, AA877970, AW298706, AI091074, AL528797, AA679407, AA262395, R39774, F37288, AW583965, BE247730, F31394, AI337442, AI862988, BG059596, R01000, AW958999, AW264098, AI865004, AA257153, AW293693, AA257062, AA213899, AA204683, AI867617, AA360510, BF869948, R00999, T15823, H18863, AI572426, AW168778, AW972279, AI758538, AI439664, AI610671, AI924051, AI309306, AW025279, AI096771, AI669864, AI539560, AI950877, AI372009, AW151974, AI625444, AI923989, AI568138, BG114901, AI886355, BF337541, AW150750, AW129160, AI433611, AA480074, S63521, AF119899, AF171061, AF093119, AK024978, AR081734, AL137459, AF308801, AF118094, AF113694, U42766, AL161995, AL050172, AL049430, AL080110, AX015416, AK026959, AY007109, AF227198, AK025375, X52128, AF090886, S69510, Y09972, AL133560, AB050431, AK024855, AF130110, AR055519, AR005195, AK027121, AK026659, AF090900, S82852, AJ010277, AB052191, X57961, AF116698, AK027173, AK027181, AF130089, AR083283, AK026642, AK027260, AK000391, AR053103, A12522, AK026356, AF028823, AF069506, AK027188, AL117435, AL161954, U02475, AF081366, S69385, AF118558, AK027142, AL137259, M79462, AL137479, AF161418, AF119896, AK026624, E01812, AX015425, AL096751, AF140224, S66283, M85164, AL133029, AL137465, AK025414, AB048975, I22020, AP001857, and AP001857.
HFXGI63	337	799513	1 - 2506	15 - 2520	AUI32633, AU119136, BE799425, BE780992, BE793190, BF217040, AA779588, BG028776, AA199859, AA779718, AA664343, AI751072, AU152580, AW962822, AA633737, AA355825, R20381, Z42654, F08207, F02149, AI609972, AW500029, AI732151, AA199929, AW779609, BF681619, AW270768, AW819125, AW069227, AI291037, BF946053, AW237905, AW271917, AA504818, AW468372, AW572721, BE301584, AI357823, AU152561, BG222813, AA584484, BE062476, AW190505, T06202, BE062478, AL079734, T74524, AW080811, AI732120, AW963463, AI249683, BG010084, AA829065, AA704393, AA487226, AI754037, AI612142, AA904275, AI564185, AI017251, AI049630, AL138329, AI634187, AV756491, AI445883, AI753365, AW674258, T57767, AW963444, AA630854, AW969941, AV710045, AA527209, AW191886, AW873261, AI251576, BF991208, AA558404, AA536040, AI859946, AW028429, AI583252, AI753672, AI446205, BF743814, AK025915, AK001590, AB046624, AC007792, AC011465, AF001753, AC007619, AC007055, AC026805, Z95152, AL117382, AL049569, AI031431, Z93016, AF019413, AL021578, AF053356, AL050349, AF314038, AL450226, AC004771, AC007384, AL133274, AF168787, AL121712, AC009123, AC006241, AC020904, AL020996, AC007292, AC008264,

				AC012667, AC004906, AL137039, AL122020, AL022476, AC011510, Z54246, AL445705, AL050335, AC002365, AP000502, AC005180, AC006111, AL121753, AL121601, AC005038, AC021752, AP001728, U95740, AC007225, AL031685, AC011469, Z97053, AP001054, AC004650, AL023653, AL022323, AL050318, AL031388, AC083874, Z85987, AL033547, AC005703, AL035683, AF139813, AP001752, AC008119, AL033527, AC009238, AC004655, AC006966, AC010605, AL359704, AC003010, AL031737, AC003043, AL035447, AC006126, AL034419, AL049766, AC002549, AP000010, AC005914, AC009075, AC007011, AJ009611, AC008277, AL161627, AC018716, AJ011930, AC010463, AP000115, AC009242, AC009016, AL031984, AP001711, AL022311, AC011497, AL033529, AC005625, AP000344, AC004526, Z97183, AC008747, Z93023, AP000212, AP000134, AL135818, D86991, AL445490, AC010087, AC003982, AC007057, AL049759, AC011473, AL133500, AC006480, U95090, AL161666, AC002316, AL109984, AL136304, AC022407, AC006597, AL035669, AL022721, AL133507, AC007676, AL138836, AC007193, AC083861, AF258546, AC010206, AC005015, AL096814, AC005746, AL080249, AC011479, AC000134, AF195953, AC002350, AJ009616, AC004668, AC004832, AC005790, AC005535, AL031432, M26434, AL137067, AL137073, AC007782, AL031985, AC006132, AL031680, Z98304, AJ400877, AC005632, AC011490, AC009244, AL121585, AL079295, AL445483, AL163283, AC024561, AC008812, AP001743, Z93096, AC025593, AL022162, AP000030, AC010422, AC005513, AL031595, AC004104, AP001067, AL132653, AL009178, AL035462, AC007421, AP000356, AC008736, AL356747, AC007220, AC026704, AC004099, AC007277, AB016897, AL138759, D87002, L78833, AC016898, AC020917, AC008403, AC006468, AC006530, AP000555, AC007597, AC002470, AP001052, AL022165, AC009086, AL031281, AF067844, AL365271, AL022313, AL157838, AL034423, AC002070, AL117335, AC008745, AL355392, AL020995, AC073593, AF235098, AC005920, AL137162, AL139327, AC008265, AC004644, AC002978, AC008687, AL355386, AP001712, Z83844, AC002119, AC004659, AP001714, AC005071, AP001504, AC011442, AL008726, AL135912, AC004125, AC004596, AC002554, AC011527, AL117380, AC005099, Z82215, AL035071, AC004472, AC005839, AC009721, and AL356392.
HAMGW1	338	799889	1 - 753	15 - 767
HDPTA89	339	800344	1 - 1198	15 - 1212
				BF971824, BG106735, BG167306, BG035527, BF037192, BE905217, BF973662, BF339624, AW411508, BF791771, BF568534, BF035520, BE262422, BE728235, BF338876, BG112933, AW404831, BE747455, AA447862, AA314553, BF338801, AW408501, BF223865, AA426192, BE962920, BE382927, BF195273, AI936800,



					<p>AW139128, AI302241, AW960628, BF792336, AI492148, W90647, AA442034, AW615212, AA932579, AA411279, AA086122, BF310765, AA808008, AW404406, AA354073, BE298978, AI187207, BE297403, AI346527, AA938128, AI040261, AA393664, AI440313, H72036, AW612697, AI681334, AA808401, AW130326, AI620631, AI653329, AI147844, BE775069, AA928695, AA868693, AA782611, AI140982, AA732147, AI023036, AI332462, AI457503, AI391483, AA337765, AW402901, AI338295, BE328408, AI094177, AA716049, AA988832, AA236525, AI283828, AI077635, AA336107, AA406297, BE729591, BG179292, AW020439, BE613362, AI332478, AA425266, BF981518, AI825236, BF588487, R49564, W90622, AI536666, BF477703, BG036255, AW439303, AA257965, R76329, AA435692, AA767813, C06192, AA428346, AA478896, AA434151, AA410850, AA292512, AA257966, AI363037, AW079350, BE392860, AW998469, AA419317, BE958587, N94887, AW612258, BE257453, BG110522, AW998470, BF590761, BF763095, AR044460, U93242, and AL096805.</p>
HSLDO85	340	801935	1 - 806	15 - 820	<p>BE312753, BE880620, BE727427, BE794996, BF311864, BF038611, AW129730, BE259585, BE276712, BG178939, BF793303, BF968281, AA910935, AI870987, BE885540, BE389702, BF316569, BE314482, AA707309, BE257344, AW964530, BE276683, AW090049, BE395893, BF204261, AI569774, BG248285, BE046061, BF828154, BE385110, BE908527, BE208254, BE390965, BF036363, AW088236, AA700721, BF434108, N42222, AI188825, AI222163, AI018526, BF828510, AA425831, AI933135, BF828526, BE294105, AI095476, AA884320, BE727256, AV744200, BF828583, AA428347, BE393331, W22084, AA575839, BE019332, BF204699, AA099520, AA830859, AW007735, AI051338, W44963, F22552, AI302395, AW027217, BG057679, AA224033, AA528053, AA643710, AA588420, AA972918, AI220664, AW592051, AI208521, BE019282, AI301455, AI355465, AI869716, AA651649, N62353, AA099521, AA223969, AV741580, W65318, AW792980, AA904065, T49543, BE205941, W44428, AI207269, AA341081, AA533603, AA576820, AA339390, T49542, AA005085, AA339526, AA320308, BG115142, W65317, AV744092, W44467, AA069720, AA069679, BF798469, BF881370, AA687492, N79115, AI188822, AA339467, AA687436, AI918249, AI686174, AI185985, N93812, AI971744, AA247634, BE207653, AI423844, AA426123, AW050559, AA974812, AW263711, AF161519, AC008594, AC008594, AC040160, and AC040160.</p>
HDQDF38	341	805499	1 - 1970	15 - 1984	<p>AW205873, AA203398, BE513505, W87862, AI032039, AA778879, N98667, AW501990, AW248483, AU144352, AW505433, BE468085, W87742, AI049588, AI361617, AI128707, BE769898, AW206917, W01319, BF910489, BE715627, BF919203, R02569, BF874109, BF939052, AW135278, AA243540, AW975082, AA485181, AA658147, R45576, AA831644, C03505, BF919009, AI247530, BE715632, R63560, AA243344,</p>

HULAW69	342	805628	1 - 666	15 - 680	<p>AI904031, BF514869, R63515, AI904032, BE061117, BF823087, R02688, R40166, R44207, BF906534, R44208, AI784098, BF091587, BF734769, TI2049, BF380607, C03415, Z42786, BF333680, N78722, N87820, AI560595, AV695516, AA721452, AV697734, AV695724, BF771466, AV695721, BF575896, BE769909, BF903846, BE008310, BE875190, AF208848, AK023258, AK021530, and AL359593.</p> <p>BG114558, BF696827, R66527, H46855, AW583586, R28130, BG030159, BF571367, BF382241, BF677752, BF184956, AA420715, AV735500, R82586, AW327347, BF029990, AW161124, AV744127, BG168461, BF971167, H49687, AI878995, AV710467, BG166970, BF968107, AA522937, BG034696, BG163707, BF213193, H44205, W31692, BF030176, AA285085, BG112033, BE256879, BG031029, BF381820, BF183860, AA479559, BF683278, AL535052, BF793677, BF541112, BF132139, BG113339, AA305038, BF103812, AA428036, BF674463, AA315675, W51849, BF130738, BG028333, BE909361, BF213270, R96272, BF700007, BF664599, BF827777, AA310999, N98945, AA121183, H42256, BF665269, BF977675, T53397, AW083308, BF339338, BE878076, BE047828, BE546966, AA298525, BF032082, BF977978, AA203752, BE879546, W79179, AV747127, AA136783, AW405858, AW130434, AW131295, AW131303, BF540976, AI767547, H51483, AI955122, AW301038, AI422293, BF381764, T54405, AW081643, H50194, AI672869, AW055043, AA416837, BE855465, AA633512, BE788872, AI028278, AI351044, AA296778, AI138248, AI281194, AA296829, AI560983, AA082396, BG149478, AA479535, BF084344, R50013, BE789337, BF218736, AI097413, BF676451, BF887309, BF887298, BF879230, BF879163, AA496596, BE744389, AI056143, AA563931, R47812, BE936616, C02084, BF821422, AA477638, H49594, AA813514, AA910282, BF883168, H45628, H45625, BF477346, BE220255, AI912595, AI301158, AI418360, AA516519, N44055, AA284914, AA843796, BF870347, AA416688, AA046382, AA297953, AA722082, AA705272, BE826706, F25958, AI042242, C02981, AI348253, AI879494, AA055293, BF700730, BF247545, BE826711, AI298347, AI346869, AI302881, AA402862, AW799874, BF344686, T52195, AI184088, AA420761, AW236255, AI814753, AA862704, R82587, W74425, AW438834, Z32877, BE834154, AA719502, AI073646, BG026325, AA580072, BF792335, W52111, BF879420, AI718735, W04524, R66528, F30163, AI301336, AA976549, AA136667, AA992419, AI339223, AI866642, AA873692, AI338648, H46769, AI264131, AA468849, H50195, BF879226, T52274, AI394058, AA428813, H44206, AW004649, AA496548, T53398, H42257, AA911310, AA766455, T54328, AX014159, and AF161372.</p>
HE9QK23	343	805751	1 - 1308	15 - 1322	<p>AW897798, AL040456, W44681, AV758808, AW057713, AI445728, AI567918, BF929670, AW137633, AI362734, AI694501, AI560113, R66361, AA973346, R24468, AA256199, R24469, M78793, AA987235, R67503, BF926218, AA688372, AA398164,</p>

						AA861041, AI024099, AA719008, AI694956, AI150346, AI217933, AA459841, BE217862, AA393248, AI652522, AA629029, AW137492, AI075905, AI796754, AF081250, AF081249, AF195527, AF195526, U63407, and U63408.
HNTTB36	344	806145	1 - 688	15 - 702		AV723274, AU132547, AU131582, F11613, AL050070, AB011103, and AL117393.
HETJG63	345	806385	1 - 480	15 - 494		
HLDR045	346	806430	1 - 2216	15 - 2230		BF795217, BF791941, BG261343, AI684486, BF577081, BF790851, BG105539, AI566869, AW976683, AI423440, AW502562, BF951085, AA484824, N25988, AI861827, BE075227, AW131618, BE075230, AV720260, AW009256, AI916769, AI768611, BG249121, BF062871, AA310252, BE736694, AW131634, BF476238, AW058571, AI356185, N36619, AA955004, W32196, AI096610, BE857335, AI056733, BF059109, N94810, W19887, AI870957, AA134378, AA052976, AI074330, AA284346, AA284345, AW016216, N98907, N39417, W44790, AI232291, AA960796, AA641073, AA311539, AA134377, H56248, R51171, AI682459, BF940771, AA342188, H73423, AA181868, H71237, BE88616, H38561, AA358350, AI266521, AI266523, AI350409, AA731439, T79208, H74193, AW502209, BF676239, T98365, AA358037, N69917, AI284001, N63512, AA053469, BE876332, AI798254, AW073490, BE075519, BE075526, AA384306, AA343294, R51055, H54724, AI474164, C02106, R00686, H54675, AA385699, W57848, N27559, R00580, T98364, BF889258, AA775120, W32231, W57821, AA358349, BE162798, H56054, AA371491, N40379, AA358036, H71238, AI961185, T92855, AI949375, W31970, AA322980, W31378, BE620277, T89879, AW408709, BE880622, BF826341, AA186833, AI510801, N24120, H98792, AV755072, N74027, N20201, AF086175, U25276, AC005103, AF047825, AL079342, AC005803, AL031390, AC005162, AL353706, AC007383, AL161420, AL356057, AL049745, AL049540, AL022718, AC005332, AC000379, AL160234, AC002036, AC008551, AC003690, AC008635, AC002312, AC000353, AC005844, AL109923, AL356865, Z99127, AC004228, AC005231, AC002119, AL136418, AC005011, and AC006449.
HFDZ38	347	806756	1 - 572	15 - 586		AL449826, AL449912, AL517582, AL519910, BF027493, BE346592, AL521647, AL449825, AL449911, AL530694, AL530801, AL530267, BG115619, BE547319, BE540603, BF238066, BF576695, BE891889, BF029131, BE315514, BF063670, BE869726, AA452699, AL449721, BE961028, AL449722, BF185160, BF185952, AW365059, BG030043, AL449809, AA001396, AL449808, AL449807, AI742426, AV702492, AA361681, N24991, AA017578, BF203439, Z44280, BE737467, AA485157, AI971875, R17530, AI343524, AL449720, BF847853, BF002486, BF805438, F08051, AI681435, AW663669, AI800948, AI741119, AI808184, AI306659, BE091524, AA329679, BE781485, BF196444, BF035075, AA450060, AI929037, AI686596, AW014260, AL021578, and AF314058.
HLMDO95	348	810257	1 - 471	15 - 485		BE958211, BF667988, BF899665, AF282693, and AR083245.

HSLGA19	349	810406	1 - 1101	15 - 1115	AL520760, BF980926, AA985175, AA357674, BF686128, and BE264273.
HGBGM53	350	810461	1 - 343	15 - 357	BG030674, AW954566, BE738693, BE548295, AI635570, BE738125, BE538273, AW703853, BE349507, AA703001, BF871188, AI860461, AI818619, AW628835, AI564058, BG258506, AI248704, T33302, BF930586, AW002906, AA350185, AI244512, AA424468, AA424391, BE707526, T84027, R48915, T76986, AI870687, AI955448, BF002927, AW572041, T77152, AI910493, AW204382, AW136998, BE274025, AI022309, BF760830, Z45871, BE893241, AI918983, R48803, T84026, T80818, AA165465, AA654353, AW195393, AW339291, AA299342, AA165365, Z41503, AI702665, AW961229, T81218, AC005585, and AC004997.
HIBCO73	351	810586	1 - 1474	15 - 1488	
HDPOM13	352	810899	1 - 767	15 - 781	AA459837, AW953466, AW957134, T09073, BE734978, AW838037, AW608110, Z42773, AF053369, AX003081, AX003083, AB022317, AB021292, AC006543, AC006544, AC007387, AX003085, AB002563, AB047604, AC003061, and AB022315.
HMEJR75	353	811268	1 - 657	15 - 671	AL532827, W46511, W22983, AI521138, BE273852, W28334, AA035478, F12221, T66348, AA035451, AW861403, AC005697, and AC004852.
HOECE93	354	812221	1 - 563	15 - 577	AA463818, and AF015416.
HLHGA65	355	812445	1 - 437	15 - 451	BG026050, AI761387, AV658658, AA349453, BE003517, AV657118, AI498310, BE905842, AI288807, AA377721, AA747394, AV657075, AI702320, AI801728, and AA380573.
HMABF89	356	812465	1 - 859	15 - 873	AI923712, AW300857, BE244247, BE047368, AI499936, AW084829, AW591899, AI214481, AF241229, AF117297, AF125304, AL390719, and AL390719.
HLKDC74	357	812760	1 - 1272	15 - 1286	AL529141, BG024356, BF979494, BE696022, AW504646, AA172300, BF573528, AV764525, AW501168, AA431999, AW014705, AW862909, AV747780, AW800625, and AB011421.
HDTAV81	358	813300	1 - 783	15 - 797	AU131998, AU124333, AU124752, AU126247, AU133773, AU125907, AU138965, AU118720, AU124348, AU120256, AU135144, BG120186, AU127635, BE619571, BF034166, BE891010, BG030699, BE738402, AU134389, AV731084, BG109466, BG027171, BF792629, BG171545, AL042815, BE884436, BF212326, BE618965, BG250347, BF977717, AV720645, AV720730, BF981731, BF574770, AI693916, BF791227, AA778662, BG118288, BF692465, BG121644, AU133346, AW967353, BF923740, BF102649, AV752464, AW995083, AW190223, AI979116, BE567006, AU145217, BE737789, BF184355, AI625215, BF852400, AU149058, AU148549, BF031650, AW994925, BF242272, AU149474, AU154977, AW994913, BE301769, AI126560, AW994920, BF677776, AW937894, AI683404, AI811671, BF668908, BE618038, AW771384, AW080047, BF248484, AI831215, AI685351, AU153628, BE866317, AI814722, AI333666, AW835406, AA975513, AU155395, AI679295,
HETIZ34	359	815417	1 - 2780	15 - 2794	

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HWLIX39	360	815669	1 - 1452	15 - 1466	<p>BE378727, BE562826, AW006352, BE512716, AI380009, AW207483, AA282457, AI868583, AA856732, AW138336, AI915131, AL119457, AL119399, AL042382, AL042544, AL119511, AL079794, BF970990, AV726784, AV702147, BG164558, AI889953, AW073994, AI569309, AI471227, BG168696, AI520809, AI890628, AI701975, AL043152, AW193026, AW198075, AI696533, AI868931, AV703495, AI582932, AI582483, AI468872, AI890507, AI800453, AI559586, AI866469, AI476109, BF812936, AW149925, AW083778, AI627880, AI917963, AI923370, AL119324, AI445992, AI288305, AI922901, AI620302, AW020095, AI564749, AA449768, AI287326, AW168485, AI824576, AI635067, BE047852, AI623133, AI696570, AL079741, AI829330, AI587606, AI872423, AI866820, AI282695, AW191844, AI174394, AI073952, AW827289, AW264895, AI590686, AI281757, BE620444, AI961589, AI611738, AI802654, AW130849, BE746761, AI951076, AI365256, AI352497, AI921248,</p>

AW130534, AW190042, BG029086, AI431975, AI591132, AV741327, AW983822, AI873638, AV728670, AW088903, AI620075, AL043168, AW024275, BE543089, AI650787, BG036846, AI591025, BF525578, AI682798, AW970048, AI590415, AW193872, AW170663, AI284131, AV682124, AW150622, AI783861, AW089221, R32821, AI538817, AI125884, AW148356, AL037081, AI432736, AI367210, AI479126, AI866798, AA001397, AI241923, AI932503, AI538085, AI827226, AI919593, AI036638, AW118518, AI866127, AI612750, AI539153, AI046595, AI687166, AI537074, AI589668, AI571909, AI299650, AW151714, BG032704, AI891084, AI628217, AW983829, AI570807, AW085681, AW026882, AW983832, AI627988, F27788, AI249962, AI288050, BG028116, BF854113, BF812960, BF920893, BF812938, AI338212, BF752245, AI624293, BF970652, AI347854, AW129230, BF061283, AI670009, AI439350, AI866770, AI433157, BG029829, AI702073, AW089006, AI679631, AW189415, BF724198, BF812961, AI783504, AA502794, AI539771, AW163834, BG110305, N33175, AI445990, AW238688, AI537677, AI955866, AI249877, AW131282, AI521560, AW051088, BF343521, AI633125, AW088134, AW151785, Y11587, U77594, U49434, I89947, AR038854, AB051158, X82434, I48978, AF260566, AL080148, AF130066, AF314091, AL137271, AL080159, AF225424, A08913, AF061981, AL1389982, L19437, L30117, AF061795, Y14314, AF151685, A08910, AK024538, A08909, AK025798, AK026532, AX040958, AI8777, AF119865, AL080154, A08908, AL050155, AR083266, AF162270, AL122098, A08916, AI137463, E06743, AL117440, AK026462, AL137476, AI359941, AL138939, AK027096, X040974, X84990, AL133016, AF185576, I89931, AF067728, AX042059, E04233, AB041801, AL133081, AF155221, A45787, AF155148, AF113019, AR087170, AL050024, AL080127, AK026593, AK026534, AK026408, AL162002, AF003737, AF113689, AF130055, AL137478, A77033, A77035, AK000636, AF111849, AF030513, U72620, AL137557, AF183393, AL117585, AB052200, AB047631, A08912, AL122093, AK026647, AK026583, AL133645, AJ299431, AK026608, AK000450, AB046642, AK025632, AL117578, AL135940, AK026533, Y10080, I48979, AL137273, AL050092, AL137480, AL137550, AK026744, Z82022, AL157479, AK027160, AL162062, AF090903, AF113691, U80742, AL050138, AL1389935, A21103, AK026045, AK000647, AB048974, AK025092, AB050431, AL133075, AX006092, AF116631, E02349, AL110280, AL117435, AK026885, AX045627, AF116649, AK026551, AF130110, AL122121, A012755, AL137292, AK000718, AK026865, I09499, AL133067, AF119894, AF119899, AK026480, AL137560, AF119909, AL137479, AF158248, U78525, X93495, AF061573, AL050277, E03348, AL133098, U67958, AB047887, AB050410, AB047615, AL133665, AK027144, AK026592, AF130099, U35846, AF106862, AF026816, AL390154, AL162083, AK000418, A65341, AK026528, AF087943, AK000432, AL133640, AK026784, AL359583, AB048954, AK026746,

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HDTJ12	361	823632	1 - 923	15 - 937	AV07825, AA046836, AA047007, BF701182, BF241086, BF206746, AW197684, BF239243, R97204, BG111573, BF694224, AW238561, AA188308, AA157267, AA356666, AA936736, AA171802, N42257, A1498655, BE278347, AA196715, BF246184, BF355711, AA377854, AA377503, BF909622, BF746920, AW957424, AL138743, and AF008554.
HSVCA10	362	824800	1 - 442	15 - 456	AW966079, AW955776, AC007790, AL121578, U66059, U95740, and AC018766.
HDFQA53	363	825910	1 - 447	15 - 461	BF346190, BF530674, AA452430, AI147740, AI553750, AI567497, BF347192, AL132855, and AL049829.
HE9PC92	364	827237	1 - 762	15 - 776	BF971441, AW966059, D80043, AW973474, D80391, D59787, D58283, AV719822, AV720731, D80196, AW966029, AV699550, AW960454, AV719557, AW959136, AW959628, AW966032, D80188, AV718707, AW978634, AW975618, AW978661, AW960465, AV720878, D80253, AW973307, AW959570, D57483, AV699447, AW959799, AW959202, AW966531, C14389, AW965175, AW966053, AW975613, AW949642, AV718489, AW958993, D59859, D81030, D80166, AW960553, AV718931, D80212, AV718692, AV722801, AW959597, D51423, D59619, D80210, D51799, D80240, AW973482, AV719188, AW966075, AW956397, AV719324, AV718938, AW966065, AW962082, AV718633, D59467, AW975605, AW949631, AW973488, AV720211, D80366, AW973334, AV723927, AW966534, AW949656, AW966022, AV719468, AW966013, D80022, C14331, AW966041, AV720533, D80195, D80219, AW975621, AW978648, AW949629, AW960473, AW965177, C15076, AV718530, AW965163, D80164, D59275, AW973541, AV720791, AW966054, AV720203, AW960532, AW964756, AW966050, AW958992, D80227, AW966062, AV718440, AV719783, AV720028, D59502, AV718800, AW965185, AW965197, AW965196, AW973485, AW965184, AV718844, AV720464, AW975623, AV718770, D50979, AW973490, AV724520, AW959062, AW964477, AW956434, AW964488, AW949641, AW949654, AW949643, AV699927, AW949618, D80024, AW959582, D59889, AA305409,

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HMSOU92	365	827837	1 - 639	15 - 653	<p>AV718633, AV718938, AW970877, AW378532, AA651639, AV699669, AW023111, BG236628, T57774, AI061313, AW081194, BF965243, AW572202, AI625604, AA533176, AA532700, BE062476, AA148672, AA630854, AA657835, BF725844, AI732151, AI247183, AA491767, AA574442, AV700313, AV647070, AJ754653, AA527741, AW196288, AI188390, T58367, AV762454, C15060, AA610509, BF771774, D34614, AC004965, AC007404, AL121753, AC008784, AL117377, AC009311, AC025463, AC008447, AP001712, AC004518, AP002015, AC083875, AC006312,</p>



					AC002377, AC009086, AL163300, U73634, AC005046, AC002365, AC008733, AC083866, AC005886, AL445217, AC068658, AC007707, AC006088, AC009481, AP001732, AL133448, AL031584, AC006057, AL031905, AL133163, AP000466, AC008651, AC012384, AL135858, AJ229041, AP000515, AC002563, AC007386, AC007564, AL133330, AL023575, AL031680, AL121914, AC004547, AC007566, AF152365, AP001610, AC008536, AL121932, AC008372, AL157768, AJ011930, AL135749, AC002367, AC005870, AC011299, AC007163, AC002350, AC009408, AC016751, AC009298, AL157789, AF069291, AF107256, AL121754, AC002480, L48038, AC004594, AC010722, AL035106, AF196970, AL158828, AC017002, AC011497, AL050318, AL133238, AL021154, AC008795, AC007308, AL161621, AC005180, AL035455, AL078584, AP001697, AC002366, AF130343, AL033522, AC007739, AL137060, AC016579, AC000026, AC004534, AC005353, AC005476, AL080243, AL023755, AC008068, AC000003, AF015720, AC002059, AL157372, AC005595, AC005822, AC018758, AC008750, Z97180, AC010627, AC002558, AF001550, AC005678, AC009953, AL079333, AP001599, AC002990, AC004554, AC024168, AF134726, AC003569, AC026162, AC018816, AF190113, AL138752, AL158196, AP000503, AC007193, AC007510, AC007226, AC009134, AL357752, AC024082, AC008394, AL031767, AL157878, Y10196, AL109804, AC008498, AC009241, AL133467, AL136088, AC007917, AL035419, AL138759, AC007738, Z95331, AC005274, AL023096, AL137782, AJ003147, AL049780, AL031655, AL022067, AC011480, AL162291, AC005913, AC002477, AC002549, AC010422, AC015541, U80017, AL022316, AP001754, AC004656, AC027319, AC002090, AL135786, AC002470, AC008556, AC008115, AL031296, AL031055, AC006146, AL390209, AC018633, AC005538, AL008719, AD001527, AL355497, AC008753, Z93023, Z98751, AC005089, AL031774, AL157361, AC007216, AL133256, AC020946, AC022432, AC006160, AC004149, AL035461, AC009487, AC004975, AC022392, AC005553, AC002300, AC004042, AC020913, AC027332, AP001709, AL110505, AP000402, AC006948, AC004686, AP000555, AC004253, AC010967, AL031283, AC013434, AC012076, AL121601, AL133551, AC006080, AC004191, AL139286, and AL049736. W95519, AA551147, BE504547, AA479332, BE144064, AA814952, AW956790, AL674224, AL809609, AW955348, AT700629, AL217948, AL348250, BE931618, AL814776, AA478597, AL535353, AJ076807, AW069449, AL214208, AL554308, AA600209, AJ052794, N93190, AJ095606, AL693158, AL346961, AL285258, AA776521, AA262827, AL660897, AA938883, AA295573, AL538488, AL367916, AL535352, AL249087, N66611, BE714471, D79168, AA928726, AA099616, AL675524, AA426316, AA291162, T79853, BE714488, AA904695, T33275, AW352316, AW469387, AW52320, D79139, Z28451, R49465, AL872902, AL923259, T87389, AL285212, H74133, F00053, D78834, AL537254,
HE8OX52	366	828103	1 - 1517	15 - 1531	

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HDAAS81	367	828170	1 - 3789	15 - 3803	AV707945, BE548222, BF691941, AA193501, BG110103, BF968853, BG120310, AI742850, BF337419, A1743048, BF444916, A9666477, AW068830, A1674650, AW022579, A1633681, A1141784, A1128150, A1681020, A1695117, A1436021, A1651006, BF126529, AW571510, A1740543, AW337959, A1962862, A1264641, A1186663, A1373729, AA150403, AV689068, BE548868, AW952974, A1417065, AW613560, AW024321, AA766018, A1917133, A1378229, AW276569, BF111935, AA968786, AW513404, AA884691, AA605195, A1333917, BE645176, A1080174, AA532856, AW662439, AW022878, A1288445, BF219074, A1765241, A1807038, C05131, AA678829, AW002429, R56429, A1289507, A1620092, AW591640, AW008703, AW591636, AA907190, R67466, BE221859, A1436165, AA922656, A1298110, A1635732, AA991305, AA971765, AW023742, AA055243, AA813082, AA905970, W60091, AA443245, A1652025, A1049642, AW874177, AA157028, AA580268, AW022570, R56702, AW149948, H89788, AW889827, AA716383, BE881791, BF909682, T77700, BF210339, D62875, W52883, H89725, AW068035, A1627492, R56430, R70663, N94450, A1493579, C05594, BF910514, A1222001, R70664, BF439422, BF940322, AV695775, A1788894, A1798260, R22351, N40144, C04213, AW084193, AA384335, Z42750, AA621159, R23317, R78247, R66539, R56857, R82755, R41700, A1536877, D31249, AW138567, AA247438, AW841736, D62874, T34599, AA852328, R66538, R18153, N56613, H42341, R18154, BG013032, AW369653, R19895, R18155, AA191353, T08222, R41701,

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HPRBB67	369	828597	1 - 1122	15 - 1136		AL523998, AL522445, A1761326, A1627648, A1096890, A1768749, A1123834, A1769580, A1638060, A1739489, A1972257, A1343435, A1521931, BE045560, BF940125, BG027411, A1765701, AW005873, A1739488, BE883089, BF939906, AA454046, AW129201, A1028080, AA644536, A1337727, AW024980, AA995710, AW772124, W27549, A1522446, A1334385, AW470826, A1670706, W35337, W07281, AW016392, AA235295, AA722700, AW057627, A1203362, A1150551, N79783, AA890228, BF382814, A1017376, AA453627, A1699917, BF195805, A1971711, A1765536, AW418989, A1523999, A1823532, A1766066, W35330, BE264207, A1088874, R41797, F34970, BE296611, W23730, AA306279, A1864330, AA322761, AA371150, H61049, A1382538, AA298233, AA706686, N58312, AA935231, BE048605, W23738, A1768001, N87864, BE876341, BG031815, BE826157, AW950440, AF272036, AL137502, AL138717, AL122049, and AL162062.
HPIBM51	370	828682	1 - 651	15 - 665		AV712703.
HLIFY81	371	828777	1 - 970	15 - 984		BF668112, BF308870, A1139901, BF4448659, AA743934, A1817040, AA605076, AA746310, BF102826, AW152501, A1679319, AA976688, A1369815, BE772389, A1858221, A1580110, A1948429, AA454940, A1186062, H98729, A1086150, A1361419, A1362263, BF333747, BF694216, AA662751, A1041625, N24299, A1361545, R91402, A1354298, AW628473, W20421, AA639539, A1344442, T86451, AA953728, A1027564, BF665861, H43805, AA714010, AW797389, W19089, AA888099, R87627, AA181709, R92659, R87531, BG024024, AW797367, BF904180, BF038804, A1567637, A1669639, AW999906, A1537516, BE964497, A1801536, BE566196, BE965481, BE909521, BF876588, A1918634, BF925370, A1364220, AW078767, BE091470, BF816041, BF913615, AW083804, A1679916, A1951222, BF816031, BE393551, BF817746, BF811808, A1050666, BE780932, A1285417, BF753056, N74355, A1632981, BE905628, A1613017, A1608802, AW834325, BF913569, A1952542, AW118508, BF924884, BE068047, A1469516, BE884910, A1513891, A1611743, A1919345, AW172787, BF814429, A1677797, A1701948, BE964767, BF814541, AW148738, A1696626, AW130309, A1513999, BE890955, AW024425, A1379711, A1266558, A1560806, A1699154, A1418128, A1926041, AA746507, AW073898, A1805688, BE965169, A1636719, A1513685, AA830821, A1366549, AA665587, BF915316, BF904248, BE964198, A1926593, BE613727, A1683939, A1589993, A1805638, A1686823, A1636788,

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HDPLO68	372	828826	1 - 2480	15 - 2494	AW970130, AI744083, BF979101, AV709325, AW469184, BF511108, BE539806, BF028438, AA150364, AA236207, BF436941, BF433328, AA150188, AA812205, BF435139, AI417169, AA905150, AI986415, AW189108, AI699342, AA256878, AI472773, AL246457, AA808712, AI921676, AA441955, AA292485, T17368, AJ972445, AA514616, AI263744, AW084726, BF734581, T76933, H83780, AA255472, AI138535, FI3101, AA292484, BF911956, R54121, H53524, Z39453, AI474485, AI879806, D63323, AA909498, Z45449, AI383278, N33845, AA236206, AW884411, AA740631, AA193510, BE783178, AV753530, H53525, Z43380, and AC002357.
HHEU025	373	828922	1 - 2424	15 - 2438	AUI130475, AUI124575, BE745541, AUI137992, BE271687, BG170855, BF057048, BE501252, AI363286, BG163691, AW474958, BG257800, AW439246, BE884153, AI950988, AW594051, AL049112, AW593497, AI655350, AI868802, AI935191, AA002041, AUI145883, AW969212, BE349185, AA625272, BE295009, AA564814, AI334349, AA521508, AA831678, AUI152068, AI093447, AI221823, AI683495, AI632423, W78082, AI830624, BE858360, AI277244, AA604562, AA948458, AA922990, AW242129, AA373428, T27532, T27533, AL047928, BE468131, BE393563, AW470944, BF933661, AI018432, AA324284, BE771870, AL079583, BF526589, BF793899, AA001835, AW196142, AUI120404, AL041249, BE720563, BF686523, AI264786, RI4071, AA167058, BE939957, X85660, R40196, AA331947, AW235837, N88270, AA897167, AUI125401, AA902298, BE773191, BE706523, X85661, AI907546, AUI19575, and AB007885.
HNTBH70	374	828926	1 - 570	15 - 584	BE781119, AA165340, BF674424, AV728265, BF029102, AA021328, AA370261, and BF811117.
HMIAN37	375	828988	1 - 2724	15 - 2738	AL525140, AW994403, BF340540, BF690628, AL525139, BE784612, BG026204, AV721455, BF794837, AV650386, BF970767, BF035901, AI796091, AW070331,

					<p>BF680249, BE645232, AW842534, AV734580, BF594806, BF216662, BG115651, AA885479, AI808635, AI807844, AW504019, AI808760, BF911687, AI806642, AW664415, AI743373, BF678412, BF693497, AI218017, AI810180, BE856520, AI206748, AA830249, AI097104, BF941440, AI606037, AI091575, AI218828, N25567, BF476361, AI263892, AI687290, R61426, AW590234, AI423504, AI425096, AW296739, AW080003, AA278627, BF107405, N30486, AI765767, BG111206, AA707586, AI699928, AA304993, AA719764, AI005677, AI674380, AW962731, AA707518, AV656336, AA282001, AA749063, AA278628, AA789184, AI950490, AA757577, AW172424, BE139484, AV650317, AI092275, H09719, W31769, AA770430, BG118597, F34735, AI742264, AI192998, AA768824, AA659932, AL134147, R16042, N44865, N34167, AI968635, AI336810, R12106, W32476, AA576431, AA907350, T78284, AI470700, BE003073, BG152877, AI005582, AV724197, AI216029, AI624069, N68031, AI659546, AI097107, AA969676, R63310, BE814870, AW196635, AA843425, AA319692, AA379726, F06779, BE810254, AA768638, AW983647, AA280617, AW082682, T73414, AA868055, N57579, BF091537, AA299057, AA369839, AI762252, AA809759, H46838, AI758489, N52758, W32662, AA369840, AI184905, R36860, R16041, AA371453, AA370558, AA029481, AA029545, AA778585, AA361763, AW609818, BE810246, Z39839, AA329526, H40110, AW885042, AI278589, AA483843, R37936, BF353681, N83750, BF992341, H40174, W04668, R18232, R25515, H14752, R12287, AW304327, AW983574, BE825289, AA215402, R20615, AI13396, BF790614, BE697754, AA885041, AI243557, AA259169, AC006263, T66627, and T66628.</p>
HPFDI25	376	829071	1 - 1097	15 - 1111	<p>BF206962, BF305074, BF305149, BF439108, AI268268, BE395507, BE385088, AI819416, BF055525, AA947965, BE467664, BE857149, AI688717, AW027310, BF589303, AI336199, BG179674, AW967435, AI672288, BG150003, AI828977, AI421864, BE541981, AA402255, AA456227, AI183357, AI279126, N30912, AI570596, BF002580, AI817223, AI871749, AA534311, AI161234, AI347720, AI672691, AI814234, AI693829, AI459084, BE296960, AA411630, AA236940, AA237089, AI217696, AI758234, AI928989, AA454620, AW268877, AW051826, AA830345, AI168163, W15416, AW014577, AA886902, AA570688, AA906799, AI332391, AW470301, AA436137, AA402751, AI311662, AI276098, AI275571, AI800622, AI082789, AW025981, BF439499, AI094730, AA969974, AA828389, AI991821, BF149343, AA830779, AI206074, AI929238, AI091493, AI268847, AA436029, AI094024, AI693502, AI042392, AI242442, BE152615, AA443110, AI493464, AI000713, AI079484, AA456175, AI924771, AA189004, AV653110, AW575883, W02975, AW013901, AI209029, T54423, AI800570, AA714094, AI167951, AA975695, AA962315, AI269894, AA649829, AW404973, AI095104, N72262, BF740208, AI802488, AW272090, AA455645, AA910903, BE702650, AA189003, AW028777, AA742883, N51630, W39654,</p>



					AW016632, AW470366, AA406580, AA258745, R77364, AI363506, R77363, AI302897, R54728, AA810983, BE834213, AA960943, T54471, AI262659, H23363, AI283730, AA258381, BE707790, AA290639, AI814229, BE811058, AA290652, R55449, AI971972, AW027262, AI170807, N54133, and AK000540.
HIBCN93	377	829308	1 - 1492	15 - 1506	BE786830, AI056401, AW072652, AI85072, AW205916, AW957347, AI885524, AI879122, AW793024, BF681368, N34233, AI953626, AI768363, AI500165, AI887770, AI651798, AV750205, AA393235, N35730, AW297174, AW628476, AI802927, AW271854, BE672711, R56346, AA249118, AI377463, AW070857, AV700598, AI824909, N53527, AA948310, AI206861, AA572777, AA570002, AA814424, N25635, AA255602, AI478500, N25539, AA634056, H07018, N28490, AA416965, N34136, N34013, AA902860, AA255576, AV750693, AW029208, AI690664, AI198003, H99526, H05467, N49189, AI190195, AI864484, N30121, H99763, AV687634, AI024777, AA379362, AA262183, AV686523, AI191172, R86778, AA721016, AA350164, R13979, AW902474, AI963889, AA339761, R17378, N49183, AA262707, T33288, R42616, T16329, H99527, AI423712, AI952318, D62700, AI267479, N92737, W20356, AA385524, T28424, AA370138, AA279758, N24571, R40039, BE070054, AI351820, BF476976, BF477325, AI674497, AA864521, T35226, D57142, BF928214, R56257, N50244, AI124956, AF143235, AF320912, and AK000896.
HCUDM68	378	829463	1 - 443	15 - 457	BE396321, BF036529, BF851200, AW965880, BF931017, AA358982, BE561336, BE765106, AL537427, N30547, BE392587, AW853469, AA366279, AW578472, H70995, AW866718, AI133489, H78449, AW366011, BE831795, AV728926, H57449, R32605, T11530, AW866749, AW373812, N39398, R64443, H13461, AW866719, BE765113, AA133688, BF838804, BF891569, BG035180, BE765075, AW866704, BF830002, AW860565, BF737126, AB007934, AB029290, AF141968, AF150755, AK023285, AK023821, and AK023406.
HCFCU33	379	829601	1 - 908	15 - 922	BG028710, BG035531, BG110379, BF035651, AA523735, AA744680, BE394436, AA496102, AI889460, AA884239, AI423208, W52780, AI023220, BE812187, AA232187, AW958033, AW249982, BE812189, BF477516, N49855, BE617457, AV705633, AI377213, AI440471, AA830850, AW967880, AI470085, AW246245, AA806441, AA741266, AA130096, AI273697, AI199436, BF975380, AI028484, AI144114, AI524208, AI261472, AI215922, BE962421, AI281030, AA809356, AI735186, AA588859, BE645876, AA398075, BF431780, AA668868, AA922498, AA826865, AI721076, F26431, AI224934, H69575, AI984011, AA130095, AI963211, AA243109, AA988255, H95065, AW675353, AI378424, AW977897, F28374, AI936240, AA744793, AA809458, AA827659, H62017, AI493433, AA809442, AI266572, H85385, AA835915, BE617905, H41598, AI371682, AA393987, N36218, AA602990, AW474121, AA872643, BF512094, BF678739, BE840806, AA551426, AA368844, BF750755, BE267207, AA877236,

HTGCM10	380	829736	1 - 2425	15 - 2439	<p>BE560655, W04939, AA574343, W52484, N54430, AA513394, AI186572, AA559062, AI202007, N80053, H69596, AI222768, AA010201, H84745, AA292526, AA303699, AA235462, AV746713, F26160, F17553, AI133447, BE770864, H84833, BG058314, BG153186, AI216651, BE840789, BE171860, BF750754, AK025402, AY007143, AB005815, and AB012181.</p> <p>AI041823, BE467375, AI761231, AW994045, BE463559, BE327715, BF345045, AW510945, AW299366, BE219473, BG170479, BG169375, AW770754, AI417765, AI479760, AV728626, AW590764, AI279898, BG260617, BE222429, AI819080, AI134203, AI056340, AA780616, AV727721, BG030791, AA779981, BF437183, AI743364, BE857272, BF212598, BF796095, AU155295, AW078696, AU150586, AI141114, AV753083, AW024166, AA424478, AI148118, AI765647, AI289910, AA633888, AI918018, AA171713, AI333240, AI150609, N24673, AI023244, AI418896, AA410840, AA056568, AW383166, AI335003, AW196351, W03837, AA169352, AW102874, BF096186, AI391460, BE813438, AW779652, BG122208, AI969124, AI254716, H98806, AI078573, N32953, AA411555, AA702783, AI669127, BF127662, AA639534, AW401436, BF096191, AA171996, BF057539, HI3144, AA505988, AA776283, AI370829, BF198053, BF542182, R22333, AA410573, AI699042, AW952865, T63727, AI073874, AA634791, N42110, N55468, AI375283, AA644497, AA235604, BF939871, AA932556, AW172314, R93504, BF096096, T81311, AA165138, Z41227, T32367, R49204, AA341424, AI473397, T32366, H44982, T95436, AI381937, AW514314, R93505, F08063, AW327252, AA171757, AW327608, AW296729, D63291, AA298198, R62852, T95341, BF985753, CI7536, N33048, HI7521, BF086035, M62016, AA150946, AI915009, AA169548, N42625, N25026, T49267, D82675, R62803, R25604, T83508, BE185490, AA486982, T49268, AA056719, BE819061, R34248, AA172106, T49305, BF841727, T81839, T49304, T83362, N35464, BE894597, T63879, AI419602, N76843, D82665, AA151038, AW239434, R35574, R35407, AI696209, AA505164, Z21563, AW796727, T80451, BE875489, AK023373, AF131773, AF272035, AB017616, and AL137291.</p> <p>AL520059, BE616627, BE254037, AL528245, BE870744, BE615905, BE781788, BF976294, AL520058, BE782297, BG179702, BE779264, BE897551, BE795389, BE782861, BF204952, BE540475, BG255597, BE885901, BE378101, BG253174, BE615515, AA496201, BE545744, BE617023, AL528244, BE778886, BF697548, BE902405, BF312418, BE542629, BE794107, BF700073, BG254355, BE798090, AI859147, AA496363, AI813431, BF664822, BE869749, BF678149, AW405749, BG025875, AA313838, BE789297, AW578440, AA084467, BF874874, BF311562, AA303551, H02336, AA496637, BE535529, H02444, BE315291, W25124, BF874434, AW886708, N45390, N98369, AW800184, R23517, BE905837, AA282280, AA224128,</p>
HFUIS05	381	830029	1 - 832	15 - 846	

AA355494, AW952215, H84706, AA321128, AI978644, BF832795, D81961, AA320921, AW515602, AI857474, BE910505, AI199193, AA878116, BE617548, AA631639, AW769252, BF059046, BE856235, AW379866, AA496204, AI346587, N70173, AW513489, AA704287, AI016217, AI083701, AI814087, AI282646, BG164558, AI434134, AI811785, N93284, AW075484, AI700159, AW080279, AI352326, AI698401, AI573167, AW102902, AI963224, AI826225, AI648436, AA805519, BF792678, AW168296, AI445115, AL042382, AI564765, AI690813, AL079794, AI813868, BF525578, AI758309, AI610667, AL119457, AI800453, AI620866, AW081606, AL119399, AI922075, AW004886, AI961589, AL513663, AW196299, AL119511, AI812015, AW081449, AI521594, BG254284, AI919593, AW162194, AI273901, AI628015, AI817122, BG110384, BG028873, AW194185, AI866770, AI830259, AI922812, AW161156, AI869377, AI683099, AI811353, AI580674, AI354283, AI335426, AI348777, AI800433, AW087838, AI470648, AI954422, AI916419, AW148716, AI280747, AI630876, AI280661, BG163618, BG105794, AI537617, AI933992, BF968903, AI866820, AI972155, AI570966, AL040694, AI677797, AI926333, AI470293, AI540759, AA911767, AI824576, AL036673, AW827206, AW168503, BE734780, BE891834, BG029829, BE885353, AW150762, BF970990, BG008888, AA999906, AI783821, AV692345, AI540754, AW022682, BF752858, AI363957, AI452556, AI633314, AW734592, AW080079, AI373914, N29277, BF680133, AW168849, AI961393, AW150326, AW130307, AI868204, AI624548, AW410090, AW631265, AL036980, AI634305, AA903106, BE783541, AW090387, AI571699, AI590624, AI950688, AW105601, AW169604, AI648508, AI567612, AI679550, AI554821, AI866082, AI932458, BF814761, BF764538, AI263331, AI918435, AA287231, AW169671, AI680498, AI589267, AI245008, AI567866, AI612885, AI439717, AI540458, AW075645, BE907151, BE048026, AI648458, AI251221, AI247193, AI679800, AI829327, AI554245, BF814357, AV696257, AI635038, AK024843, AF110764, Y11587, AL442082, AF130075, AF205861, S36676, AK026164, I48978, U77594, AL137294, AL122098, AL133016, A08916, X62580, AF242525, AL050277, A52563, AK025465, AF218034, AL389935, A08910, I89947, A08909, AB047941, AR079032, AF260566, AI006417, AF116639, A08908, AF260436, AK024538, AI8777, AL137547, A08913, AL137665, AF111849, AL110222, AR068751, A08912, Z97214, AL080124, AF159615, AL137558, AF116631, AX040958, X79812, AF218031, AL137550, AK025798, AL110221, AF177401, AL137521, X98834, AF113019, AF116646, AF314091, AL162002, AK000418, I89931, AB048964, AF065135, AL137560, E02349, AK025209, AL110225, S68736, A93016, AL122110, AR087170, AF067728, AX042059, AK025391, AF111851, AK027146, AJ003118, AL080126, AR038854, AL122049, AL137459, AF119860, AL389957, AF017152, AL080140, AK024524, AB050410, AL049314, U68387, X72889, AB047248,				
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					AF028823, AL137271, AK026947, M27260, E08631, I09499, AF217991, AB016226, AL359624, AF118094, I48979, AK026542, AK026532, AL049464, AK024594, I89934, AK026526, AL133104, AK000432, AF119871, AK026885, AF031147, AF079763, AF130092, AL353940, AK024546, AL162008, AK000137, AB052191, AF069506, AK026762, AK025435, AK000250, A07647, AL137656, AL353956, AF146568, AL359620, AF130059, I68732, S76508, X93495, AL117394, AF113690, AK027096, Y11254, AF218014, AF116609, M30514, AB046642, I92592, AL137529, AF090900, AL137533, AL442072, AL133014, AL389939, AF026816, AL137463, L04849, AR038969, AF119899, AL049466, AL137478, AK027161, AK000636, AK026746, AB007812, AF219137, U00686, A45787, L31396, AF040751, AL137658, AF106657, AL050138, U35846, L31397, X96540, AK026950, S61953, A21103, I89944, AF116691, S75997, AK024588, A65341, AF159141, AF118070, AB048913, I33392, X80340, AL080154, AL050172, AF119859, AK025092, X52128, AK027204, AJ238278, AB048975, AF106697, U49434, AL050116, AF130068, AF138861, AL157431, A23630, AL080148, AL133010, AF061573, AL137292, AK026629, AF119337, AR020905, A08907, AB048919, AL133081, AK026744, U58996, AK027182, AK027144, A12297, A03736, AK026534, Y10655, AF017437, AK027081, AF087943, AB050510, AF166267, AX005848, AF225424, AX005804, AJ301634, AF155221, AF026124, AL137574, E07108, AF119857, AL162062, AF130099, AF061795, AF119856, AF151685, U66274, AR079011, AR079012, AL359615, AL050108, AF155827, AF208026, AF102578, AB034701, X53587, AK026591, AF155148, U95114, AF118064, AL133558, and AK000618.
H2CBH25	382	830128	1 - 757	15 - 771	AA307490, BF981824, AW963170, AA361352, AA371254, AL538538, AV734761, BE164286, BE174802, AA760802, AA642332, AA252491, AW967785, AA521086, AW974493, AA128085, AC004049, and AK026323.
HWL.FQ55	383	830262	1 - 701	15 - 715	BE867525, AW139432, C75094, AW749328, AP000502, and AF134726.
HWL.BK80	384	830339	1 - 535	15 - 549	BE314989, BE903612, BE901232, BF507996, D42047, and U97256.
HWHQR4	385	830348	1 - 981	15 - 995	BE155717, AW383157, AA295728, AW082090, A1469075, AW612887, BE222471, AA809879, AW205375, AW204671, AJ440266, and AA983601.
HTTDO45	386	830542	1 - 2018	15 - 2032	AL517117, AL534518, AU125294, AU143452, AU118572, AL517116, BE792113, AU121192, BE793962, AI356346, AA773564, BF435179, BE886334, BE795064, AW149620, BE383734, AI608941, BE748762, BE622370, BF203966, BE790688, AV696007, AI934471, BE733419, BF435252, BE219495, BE791170, AU141523, BG248252, AW166202, BG169497, BF980852, AV653212, BE797475, BG180336, BE295362, BF205555, BE790686, AW248975, AI927017, AI927649, BE892350, BE258769, BE748454, AV653246, BE386198, BF733017, BE277200, AI935538, AI689743, AW237367, BE267474, BF681633, BE386284, AA669837, AV684061, BE265906, BE326704, BE264857, BF315665, AW966083, BE728981, BE270256,

					<p>AW977866, AU139664, BE264431, AA773811, BE313692, AI826904, BF732388, BE208638, AA522692, BE463425, BE465120, AI985556, BF306548, BE295650, AA160675, AI766899, AV689563, AW615658, AA129593, AU148980, AI242161, AI339338, AI915875, AI781977, AI679419, AU159062, AA743161, BE394851, AW129250, BF313256, AU160539, BE222517, AU147054, AI292110, AU145096, BE622820, AW473145, BE551066, AA995857, AI632625, BF434612, AW005265, BF732958, BF195296, AW205957, AA031697, AW511387, BF305552, AI080003, AI985496, BG236394, AI640340, AI075293, D58067, BF724595, AI753324, D58068, AA100913, BE967287, AI679929, AI681080, BF739968, AA186698, BF206378, T60268, AA834774, W42513, AI796037, AW337148, AW772479, BE326667, AA480672, BF593137, AV689500, AA058529, AI637787, AW243240, AI659936, BF211944, AA812035, AA173985, AI332985, AA995455, BE265298, AA031863, AI640567, AA173629, AV687020, BE266329, F22148, AV688387, AA188326, H29767, AI650925, AW248532, BF674020, AA974029, BE048931, F30242, AA128581, AA129330, AI524808, W61060, AI695223, T88743, AI340251, BF432185, AI962198, AI347479, AW072302, BE221712, BF444947, BE395440, AA934427, H08029, AW193412, BE939886, BE702513, AI681438, BF434502, AV697589, AI373314, H29768, AW270842, AV696822, AI085778, AI480195, AI885635, AW134585, BE939895, AW024782, AI352226, AA366465, AI272109, T68371, AA160087, AA317205, AW772225, AA962214, AW052130, W42415, AI765977, AA923685, AA330736, AW025204, AA352143, AA781222, R00503, W72566, AI310696, AA352395, AA384254, BF434518, H38826, H02114, AA303841, H07926, F36818, AW025212, AI392859, AW269249, AA872783, AA011079, R57464, BF196432, W76560, BF083008, AA878505, AI640318, AA100912, AI333009, AF006747, R40908, AW403749, AI821667, AA470517, BE675131, AW991591, AA576938, BG149272, AA587251, AW341091, R13392, AW838580, AW802577, AA877207, AI589503, D16294, AL133074, AX030435, AC005520, E12888, D44497, AP001346, T61648, H93354, AA011078, AA129619, and N88876.</p>
HRGDD63	387	830829	1 - 485	15 - 499	<p>AI939916, BE676622, D63224, BF852183, BF732785, AW407639, BE676284, AW176021, AW027307, BE675384, BF927677, BF821345, BF821346, BF897211, BF512598, AI814810, AI739298, AI192787, AW004949, AA649240, AI922342, AI306508, BE502916, AI692396, BF433632, BE219592, AA970466, AI458587, AI286059, BE676722, AA367812, AI221716, BG015075, AW839535, AW366594, AI702490, HI2163, R35607, R21083, and AL034380.</p>
HTNBX62	388	830831	1 - 1502	15 - 1516	<p>BG169002, AW960796, BE889728, AW188129, AW575807, BF243751, AI912381, AA583054, AA897558, AI590077, AI684598, BF244182, AW129776, AA883062, BF028098, AW958634, W74494, BF210753, AW958635, BE857179, BF111867, BF002282, AI818246, AW958633, AW958638, BF510537, AA195310, AI830442,</p>

					<p>AI359584, W63626, AI916569, BE677241, AW023281, BF732768, BF241853, AA772553, AI217502, AA262968, BF572268, AW674515, AI675033, AI609871, AI371911, AI683812, W79091, AW723017, AI825716, D60020, BF593859, C14696, BE328520, BE467332, AA287921, AI536775, AI088117, AI472912, AA382550, AI375566, AA999820, BE940000, AI828456, AI195194, BF690709, AA972898, C01521, BF941885, BF666762, AA853909, BF694026, AI363877, BE000571, BF593399, BE856804, AW175933, BF668025, AA974815, BF570723, AA337705, BF668860, AA385865, AA382549, AI564274, AA287981, BF216597, BF669879, BE567286, N22320, AI683277, AI199426, AI150537, AI692319, AW861096, AI868735, AW578809, AI680550, AA367467, D79383, R33482, AW337613, AA236312, AI287461, AW856565, AA385900, BF246635, AL048650, BE622721, AW856569, AW856564, AW856570, R34020, AA992535, D81405, BE765787, BF334516, BE766216, BE766046, BF244955, BE766226, BE766300, BE827840, AV652827, AW366818, and BF131969.</p>
HLICA76	389	831204	1 - 2113	15 - 2127	<p>AL048469, AV652550, AA194999, AW970524, BF184884, AW140072, AW204730, BF433166, AA215680, BE046998, AI631865, AW593881, AI655646, AI971076, AI432147, BF475864, BG121355, BE467238, AI631673, BF475272, AW149689, AI669703, AI829789, AI492434, BF213057, AI521142, BE551662, BE813686, AW614108, BE930767, AI400478, BF433312, AA288026, AW614587, BE502950, AI651180, AI193145, AI081573, AI342508, N28686, AI278064, AI126161, BF954317, BE502323, AW129475, BF960086, N21283, AI341841, AA255856, AI674128, AI399915, BE090810, W96079, T27087, AA215681, AA279589, AA256423, BF959098, BF962893, AI985255, N75153, AA860951, AI797704, AA182828, BF185677, H15282, BF841001, BF593114, AI225122, W96080, AA227601, AI239883, AW770467, R85595, AA234343, AA227901, N31219, BF435948, AW192261, AA991931, AW083386, BF030377, AA165273, AA182803, AW129480, AI978564, AI282883, H15283, AA256535, AI309945, BE045834, AA194812, AA234430, Z43797, AA552024, R36319, AA165272, AW175957, AA935846, Z39864, N58817, T27086, F03103, AL048468, R11785, R05490, R49251, Z42889, F02354, AA971119, R05597, BF979218, Z43853, BF836495, AW138352, R20079, AI521685, AA508821, AA506888, BF241824, AA318705, AA283940, AI470509, R41213, R14552, T23687, BF030442, AI267407, AA375965, AI969367, AW852333, BF154650, AW891762, BF826364, BF154653, T18561, AA593122, AW376339, BF953983, R37704, BF090151, AI311382, AV720579, BF826761, BF960414, BF960841, BF090097, BF962097, BF958637, BF090124, AV750326, AI131245, and U66835.</p>
HAPOA59	390	831307	1 - 2361	15 - 2375	<p>BE731629, AU122259, BE253744, BE735052, BE561083, AU117498, BE731156, BE730447, BE745756, BF965935, BE734241, BG027641, BE990764, BF205848, BE734303, BE561409, BF304835, BF206135, BE543446, AI828094, BE896184, BE896040, AU126506, BF204019, AA314161, AA444370, BE867090, AI986034,</p>

HLMX3 7	391	831314	1 - 853	15 - 867	<p>           AI768472, BE542801, BG107729, AU147882, BE267434, BF031425, AW957955, AW129954, AA039651, AU151058, BF242739, AU147596, AA444378, AA025822, AW952863, AU159600, AU125818, AA039602, AA432284, AU144308, AI376215, AA931215, AA992138, AI352529, AI500209, AI361672, AA314888, AI005214, BE222753, AI675983, BE328528, BE205956, AV740876, AA070015, H96476, AA977410, T78443, AI086891, AA515679, BE019176, BF912873, AI249434, AA447097, AI274337, AA428629, AA833996, AW873322, AI681656, AA082507, BF943905, AA227125, BE247397, R37636, AW250600, AI687052, AI358677, H96957, AW473153, T91051, AW248442, BF744302, T60627, AW663019, R39054, R5955, AA069905, BF745935, AA342067, R41926, T78356, BE179451, T78507, AW247353, AW627903, T85913, AI589713, BE938647, AA102550, AA661692, AA342066, AW275380, BF743364, AA102201, AW273693, AA384787, T87442, T83773, T81646, AW835581, AW805131, AK022373, AK001317, and AF151050.         </p>
	392	831475	1 - 1487	15 - 1501	<p>           BE221808, AW024347, AW083151, BE466444, AW969602, AI762204, W68684, AI817645, AW612524, AI492111, AA642933, AW772421, AA759191, AA113168, AI739413, AI829451, AI700345, AA399648, HI2309, AI432082, HI2362, AW137435, AI263207, AI953989, AI263215, AA397734, AA513369, BE906442, and AL049851.         </p> <p>           AI346913, AI738438, AI982979, AI738632, AW965221, AW339063, AI763162, AW593034, AA877557, AI460305, AW192747, BE394354, AW593059, AW572528, AA573810, BF061428, AI432211, BE563844, AW192586, AW338621, AA576730, AW731768, AW631491, BE818471, AW973529, BF529567, AI659952, AI917641, BE818521, AI659962, BE818560, AI982681, AI634256, AA535871, AA618562, AI796661, AA502765, AA085144, AI281079, AW275145, AI432985, AI802757, AI366825, BE818501, AA652901, BE818551, BF475450, AA903524, BF222156, AI034060, C75463, AA405715, AA085096, AW965229, R48347, BF445578, AA907131, AA065003, R48348, R76010, AW389827, AA345978, C75530, AW768812, BE818555, AA405780, AA514519, AA974946, AA069277, Z41149, AI829857, AA151202, Z45442, F08881, F11218, R48251, AI349012, AI669864, BG261383, AI698391, AI401697, BF754990, N29277, BE787720, AW020397, AI670895, BF055899, AI499325, AI318603, BF054877, AW303152, BG030372, AL118781, BG110599, AI539260, AI345778, BG120442, BE881363, AI621341, BE393784, AI619820, AI638644, AW089351, AA749425, AA928539, AI699823, AI741158, AW827289, AI590043, AW051088, AI540674, AA808175, AI491775, AI473536, AI536685, AI036705, AW188525, AV650703, AW268293, F36874, AI250627, AI814594, AI434731, AV734923, BF753056, BE965208, AA587120, AI354998, AI079799, BE011880, BG034146, AV745810, AI921087, AI923989, BE964454, AI370623, AI440238, AI147877, AI956004, AI927233, AW078839, AW073824, AI589428, AI799179, BE818561, BF892007, AI582529,         </p>

					AV681924, AL121365, BG180273, AI276014, AI590020, AI686565, AW188840, AI863002, AW089275, AI620864, AI422688, BG026483, T69241, W45039, AW148423, AI244343, AI633125, AI041996, AI538564, AI915291, AI635634, AW152182, N25033, BF527697, AL036780, BF877648, AI582932, AI570056, AF159228, AF131809, AI136531, AK022318, AL389935, AK027096, A76335, AK025239, AK026462, AR034821, AL137480, AX046753, AK025356, M79462, I48978, AK026590, AK026649, AF054289, AF254119, AL080074, AL137557, AF232009, AL390184, AF172400, I89947, AK025435, AB040710, AF130099, U62807, AF177401, AL442082, AK025391, AK000257, AK000414, AL049452, AL137550, AL133559, AF065135, AK026959, AK027103, AL137554, AL390139, AF026124, A91160, AF199027, AL133049, A91162, AR038854, A08456, A31057, AF111851, AL137533, AL137479, S61953, AK024588, AK027082, AF200464, AK025857, A08907, AL133637, A08913, Z97214, AL133623, AK026506, AK026613, A20553, AL157464, A08912, I32738, AL137555, U35846, A08911, X81464, AB016226, AK026894, AK025209, AF116654, AL080139, S82852, S77711, AL110225, U92992, AF116691, AK026528, E03671, A77033, A77035, AF132676, AK025860, AF061836, AF079763, AF111849, AF185614, D00174, AK024747, I09499, AL110224, S76508, AC006112, AK025889, Y16645, AK027121, I33392, AK027173, AK027164, AF114784, A58545, AL359623, AL136842, E02221, AB030279, AJ005690, U75370, AL157480, AL390154, Z13966, A49139, AK026927, X99971, AL110269, AF077051, AK024524, AF119899, AB048881, AK025084, AB048954, AF116644, AF130082, AL137294, A08910, AL355701, AF179633, AL050170, A08909, AX046716, AB047941, AL117416, AK026762, A93350, AL110221, AF124728, AF060555, AX010492, AL050155, A08908, AF145233, X66871, AL117587, AJ299431, AK000137, E12580, AL110296, AK026741, AL355719, AF047716, AR085693, I18358, AK025708, AF079765, AL389982, AL080118, AF113694, AK024533, AF130055, AF087943, AF089818, AL442083, AK026844, AK025119, AB048975, AF169410, AL080156, X93328, A03736, AF019298, AL441883, E12747, AL133560, AL137627, AK024992, AF116609, M85164, E01314, AK024944, AL110158, AL117457, AX040958, AL023657, AF202636, AF130110, AR068466, AF227198, U88966, A48221, AF107018, Y14314, Z35309, AF026816, A18777, I89931, AL122110, AK026542, AF031903, AK026870, AF217989, AK026057, AL050277, AR029490, AL137258, AF217973, AK000418, AK027142, AK026038, AL050092, AL137530, AL157433, AL137267, A48220, I08319, X53777, AK026857, I89934, I89944, I00734, AL137537, AR087170, AR094308, AK027081, AK026504, X00474, and S36676.
				15 - 1048	AW969499, AJ972460, AI341541, AW117403, AA503530, AI801928, BF437835, AA652990, BE223037, AJ023577, AA493335, AI301379, AW242107, AW205773, H47985, AA399603, AV648259, AV648284, AA397807, AV648519, AA151955, R85968,
			1 - 1034		
	831577	393			
HHERA41					



						AA463729, AA465518, R42109, AW972376, N40083, BF903023, A1032195, C21006, BF885212, BE546224, BG259386, and AA948774.
HFXJT43	394	831638	1 - 955	15 - 969		AL120900, BF347826, AA235268, A1123315, BE090603, BF904457, BF347684, AL048805, AB002303, and AC018764.
HE8CL14	395	831872	1 - 2553	15 - 2567		BG260876, BF793455, AV723596, AV706288, BE218018, AA193348, AW006940, AW970408, BE670613, AA287444, A1697530, AV724515, AA778715, A1912652, BG057678, A1337845, A1031941, AW028146, A1219839, A1239899, AW149133, AW296657, AA868439, BF511087, A1130017, A1761475, AA689396, BE645076, AA748665, AA535607, AA687414, R15368, A1039529, W78107, R84945, R97223, W79932, AA809715, AW195631, AA630124, AA164390, A1276374, H12382, A1381532, R36669, H12331, R97224, AW027809, R36227, AA382264, A1351706, R36228, H47986, BF445571, AW297460, BE835849, BF926881, AA193466, R39751, R58394, AA149874, and AF189251.
HLWFJ59	396	832119	1 - 1254	15 - 1268		AV708798, BG118622, BF971584, BF342096, AV708329, R18293, AA463262, AA463615, AW160405, BF726027, AW207311, AW606708, BE465419, BE566680, AW993446, AW407583, T81621, R01539, and AK024966.
HAJCQ05	397	832451	1 - 949	15 - 963		AL528286, AL532614, AL520144, AL522268, AL524039, A1675158, A1583939, BF316514, AW731886, A1871134, BE304483, AW084129, BE262765, BF448560, AA846540, AA036794, AW519299, A1500206, AW007351, R82234, AW001278, BF568964, AW878040, R60553, AA477048, AA476936, AA595354, AA757328, AW997324, BF568205, AA371948, AA036769, AW273842, H61179, BE379439, BF034979, AL528287, AL532439, A1700260, H91896, AL526465, A1337139, AW770188, AA036762, T11235, AL530848, A1735154, A1056619, AL520145, AW073008, AA373830, T10652, AA961999, H92351, AL525381, BE901312, BF311342, and BE800002.
HAGHC54	398	832485	1 - 819	15 - 833		BF184463, BF242917, H81182, BF831861, BG150237, BE889832, H91282, R66741, H53265, H53264, AA526672, H53769, R63025, H54405, AW516781, R71007, H54489, AA436320, AW861314, AW372386, AW372389, AW372388, AW372392, AW372390, BF762490, AV724984, H53822, AW955465, H81181, AW384098, BF507383, AA305047, BE673529, AW301702, BF961763, AA468784, AK026843, AL023583, AC005777, AL034582, AL020990, AC005954, AC002508, AC005245, AL365214, AL035693, AC005018, AC010082, AC003046, AL031284, AF013593, AP002022, AC005859, AD000813, and AC005089.
HULAY53	399	832587	1 - 700	15 - 714		AW954167, AV717830, BF248287, BF698595, BF692401, BF210704, BF207735, BF666588, AU131933, BF212100, BF571655, AU126660, BF700418, BF701066, BF670597, BE892318, AA313892, AA173369, BF691437, BF983929, AV703253, BG260422, BE618017, BG179172, AW405000, BG035796, BF797413, BF977552.

					<p>BE748153, BE748567, BG163833, BG025219, AA479643, BE564006, AW583013, BE379103, BG121908, BE312121, BF673665, BF210095, AA308103, BF238492, BF978206, BG026795, H47080, AA477100, BE250803, BE566005, AA401012, BE790765, BF240110, BE887513, AA401099, BE561090, BF317140, BE783114, BE467660, BE788596, R98575, AA088505, BF690869, BG031640, BE742316, BE746047, BF692604, BG025804, BE383477, BF693815, BE728672, BF210316, BF983856, W00676, BE736890, BE815258, BE963323, BE007588, BF209922, H70695, BE563285, BE250230, BF239218, BF238963, BF692228, BG032907, AA287074, BE743393, BF132281, BF211889, AA421366, AV747697, W42983, BF501604, H23877, BE618571, BE566863, BE905026, BF977787, AA322157, H82450, H78773, BE277528, AA158600, R80833, AA721698, AA526825, N27821, BE467037, BE868395, BG035545, AA149110, AA035404, AL523940, BE262151, BE882471, AA158621, W02947, BE906295, AW064022, BF899392, N73359, AW961128, AA187062, AA130211, R98296, N93427, C03853, N88492, AA340920, AW883486, AA513784, H65548, BF130880, BE818498, H91239, AI565802, AA541790, AI188269, AI338742, AA380545, AI041177, AI857704, AI421860, N42658, AI608962, AA133994, AW067700, AW081990, D20716, AA857480, AW778961, AA345017, AI189800, AI979046, BF669840, BG057256, AA340603, W04169, BF218938, N92521, AA121112, AV709866, BF572628, AA100939, BE007654, W38968, AI735040, BE25972, AW072841, AW131162, R11548, AA55043, BF382596, N35914, AA149111, N87271, AA847298, AA010121, AI038076, AI333478, R11537, AI336156, AI160310, AI494501, AV746870, AI672758, AI369296, AV728699, N83545, AI333476, AI126897, AI749360, AA341429, R92244, AA669504, AA089586, N43981, AI088643, AI718389, BG026981, AA703207, F36640, F20628, AA694227, AA502645, N86420, N26049, BE299069, AW273893, AA088451, W21469, N34652, F26081, AA064910, AA860645, AA694117, AA284531, AI420366, BE833135, AA448241, AI469668, AI189806, AI636826, AI033719, BE250749, F20597, AA477331, AA575937, AW511922, N53859, N31599, F36132, H98101, AI186260, N47052, AA112059, AI193952, N32788, BF814890, AA065188, N86264, AI340972, AA576225, AI034254, AA916347, BE262363, BF733136, AA654495, U09813, AI139095, and U51167.</p>
HE9DL48	400	832624	1 - 457	15 - 471	<p>BG257927, AW590657, BE879400, AI768979, BF795563, AA314374, BE242597, BF761254, BF761247, AL526855, AW961210, AW939345, AA580098, BE731068, AA313261, AW961206, AA233499, BE276849, AW594006, BE242254, AW408727, AI751632, AA300475, BE387790, and AK000294.</p>
HFKEH50	401	833067	1 - 1663	15 - 1677	<p>AL515814, AL515776, AL520605, AL515815, AL525649, AL515777, AL534165, AL525747, AL534166, BF313091, AL520606, BF342613, AI064806, BF344711, BE742923, BE797091, BE898647, BE856301, BE263819, BF528629, BE737142, BF685049, AI140344, BF063934, BF244655, AI763061, AW340290, BF683133,</p>

					AI659614, BE795356, BF036962, BE298854, BF310103, AV752738, BF034915, BE798202, BE904852, AW193974, AI554886, BF316436, AI086027, AA410368, AI937139, BE274089, AI218197, AA918821, BE312226, BF314999, AV645326, AI336469, AA829365, AW207732, AW473975, AA577435, AW402756, AW070946, AV723824, AI610462, AA722774, AI903581, AI880283, T90764, H22929, BE540568, AI623603, AA404313, R54057, BE260879, AA404713, AA912779, AW168607, AA079100, BF092248, AA609213, AA406191, BE673415, BE350786, AW952354, AA923714, R54056, AA325220, H24109, H70703, AW750290, W81523, AA330197, AA293154, AW590611, BF880685, BF837510, AI218895, AI198020, BG258381, H08723, BG002684, AA649195, AI672973, H08439, AA927962, AI873660, BF086702, T09449, AA774521, BE044401, AW794716, BF767735, AI902460, AI383372, AI204653, AI361791, Z39695, BF245003, AI187740, AA079003, AI903535, AI867628, BF847373, BF854730, AI689520, AW297870, BF965605, BF678079, BE535674, F02166, BE547512, BF847264, BF804160, BF115405, AA477404, F04433, BF541812, T83213, BF767508, AW797192, Z42682, AA335484, BF733974, AA430434, BF804096, AA479566, R16340, BF847254, Z19095, R41416, Z45578, W81639, BF833057, AA971991, AA453110, AI902445, R87881, BF917644, AI564885, AI811209, AW083638, AI568538, AI568516, AW376204, AI755186, AI523835, BE766985, BG165048, AI627893, AW008226, AI440284, AI954721, AI364589, AI934011, AI688858, AI539800, AA659690, AI540179, AW129264, AI932739, AI829432, AI270448, AI719817, AI873604, AI141406, AI885982, AW081383, AI824746, AI269469, AI274655, AI287252, AI678446, AI866893, AI890183, AI689157, AI802244, AI476478, AI266652, AI799968, AI628325, AK000833, AF226048, AJ289857, AL110160, AJ297977, AJ289848, AJ289856, AJ289847, AJ289849, AJ289842, AJ289846, AJ289851, AJ289852, AJ289844, AJ289855, AJ289854, AJ289853, AJ289850, AJ289843, AL050149, AF183393, AF061981, A31001, AF136009, AL133619, AJ299431, AL080159, AB040710, AR038854, AK000027, AF314091, X99971, AF122922, AL050366, I80062, AL133062, AK027209, A45787, AF199027, Z14122, AK026462, AK000418, Y14314, AF124728, AF217973, AL138832, AL050138, AR094160, AF131821, AK000484, AF000167, AC004805, AL157479, AF204760, AL080154, X68497, AX030362, M76612, AL133559, AB011076, AF267739, X99270, AK025738, AL137682, AP001601, and AP001698.
HUSXK49	402	834541	1 - 2106	15 - 2120	AL515964, BG248539, BE383293, AW952398, BE876088, AW968514, AA481480, AA292243, AW007814, AI936957, AA524286, BE855621, AI863909, AA291405, AA482101, AI338746, AA480134, AI094613, AI096869, AI340064, AW057831, AW005778, AW516744, W94068, AU149162, BF811939, AI360977, AI421557, AL515965, AI922132, AI361016, AI922862, AW188664, AA770298, AI888216, AI566341, AI146352, AI357394, N25476, N94480, AA551238, AI086723, AI034063,

					<p>AI359797, AI922424, AU139823, AW131152, AI362874, AA287465, BF432411, W94067, AI445988, AI360188, BF475441, BF508609, AI040574, AW071542, AI423481, AW087313, BG056533, H65453, BE964668, AA400811, AA873767, AI421759, N20109, HI7205, AA470698, R52191, AA401003, AV701965, AI037116, AA291836, AI356823, AI271977, BF980704, T58139, AA679957, BF214227, F11692, BE813293, BF939399, M79269, M79166, BF805411, AA480986, AA505288, AW166753, H64855, BE867938, AA287330, AI085523, AA481718, AW380122, AI936830, BE383758, AI582908, BE245999, HI7104, R52096, AW191028, R46499, AA853935, AI880712, AA481002, BF447091, AW058498, BF755009, F09352, AW236108, BF508271, AA305557, AW362526, AI263664, BF751874, BF981684, AA300794, AA570059, AI183653, AI913894, T63077, BF057036, R21402, AV659818, AI193950, AI364237, F30056, D54296, BF876419, BF449072, BF753185, Z44982, AA428538, AA095376, AW886787, Z40719, R21940, AA789159, H43298, AA398890, AA524336, BE931183, N31573, AI037115, N42586, AA401670, BE763347, D81182, AA953460, AI368429, AA864269, AI024382, AV706318, AI648405, AA921717, AW054979, T06812, BE931184, AA744883, R22588, AI613427, BF508268, AW993553, AI598125, AW993667, BE931181, BF034856, BE907503, AI867824, AI739102, AU155736, AA665659, BG060060, BF872254, BF752405, R45865, BF206436, AW379806, BE934289, AA770113, AU125523, BE876343, AI049539, and D87444.</p>
HTSFU12	403	834610	1 - 640	15 - 654	<p>AV645797, BF576372, BE875854, AI814466, BG056208, AA641625, BF590255, AI207769, AA769330, BF439433, AV739607, AW952859, BF057456, AI523978, AA778120, AI126087, AI818767, AA521036, AI761020, AI356487, AV743366, AA056741, AI492657, AI129903, AA806392, AI066491, W75955, AI421680, AI419209, W69164, AI478752, AV741200, AI492658, AI436418, D19625, W80846, AI754924, F36670, AA301711, AI494483, AI208665, AA836089, F22593, N29686, W80797, AA147362, AA988305, T30433, N56696, AV741023, AI188587, AI568721, AW268728, W72859, AA341743, AV735356, AI453018, AI702981, AI832770, AI418592, F22210, F33298, AI093545, AI927404, AA595920, BF880862, C17866, AA365845, AI453017, BF216971, AW001063, F27098, F24313, AA309787, AA894545, F27921, AF151025, AF077197, AF054825, and AC004098.</p>
HELMH15	404	834810	1 - 1559	15 - 1573	<p>BG259399, BF307397, BE904641, BF308750, BF038514, BE298533, AI005028, W72694, BE551307, AI697515, BE218764, AU121500, AA622527, AA029760, AI701511, BE219529, AW339103, AA447650, BF353565, BF116187, W77809, AI769081, AI341093, AI360836, AU147300, AA136867, BF114827, W93881, AI283783, AI192892, AA030016, W02154, BE677375, AW206855, AV706621, BG056759, AA044298, AA136797, AI040302, AI086876, BE712689, AI376650, AW129652, R83741, R56757, W32488, BE712527, AI469894, AW015059, AI769127, T51127, H23334, AA448054, BE261534,</p>

					BE712068, H23221, Z42428, AW592431, AA843467, BE711595, R36957, R53400, A1420084, AA044125, R83586, A1349597, A1349234, W94152, A1247576, AW073678, T46846, AA328802, R53994, A1383570, BE149945, R56909, BF820586, T17042, R39074, AW946174, BF379206, AW438998, Z38633, AW946214, A1659755, AW874504, A1863779, BF698572, BE693226, R11839, BE079713, BF892930, A1529727, BF889327, AW877263, AK022195, A139339, AF131810, AR081887, I80055, AR081888, and I80056.
HTEJP13	405	834931	1 - 799	15 - 813	AW001355, AA426091, AW182920, A1698237, AA844647, AW592578, AA436649, AA936263, AW072458, AA678521, AA442457, AC005789, and AC005625.
HDQHB46	406	835271	1 - 1334	15 - 1348	BF061943, AW812433, AV713655, AA304148, BE185725, AB013924, and AJ005766.
HCETE50	407	835488	1 - 1582	15 - 1596	AW957127, AW953197, BE699177, BF362475, H18763, H19382, T08941, W28724, H20445, H05887, H21009, T33258, Z43127, H06032, BF362457, H14789, H09417, BE840978, R18477, T31649, BE841097, R21591, Z42039, Z44001, H10688, R21592, T80521, R14159, AA319395, AA670416, BF946986, and AB047631.
HDTBO48	408	835717	1 - 1550	15 - 1564	A1684877, BF983903, AW849899, A1621094, AA521019, A1382190, AW959071, AW959070, AW297076, AA261967, AA521108, AW503885, AW849783, AW976127, AA749367, BE165960, BF351343, AW607556, AV756824, AA767511, AW501974, BF359614, AW195175, AW504264, BE621581, AA385374, AV750803, BE173541, BE707720, BE244488, BF893281, AX047350, and J03535.
HODGL01	409	835896	1 - 915	15 - 929	BG035761, BG057691, AW167686, A1244908, BG230729, BF846088, A1991247, AV692057, A1830013, AA399299, AW029184, AU155137, A1968957, AW150717, A1680350, BF197851, A1287311, BG236203, AA018793, BF514189, AA399126, BG236059, T72915, R70366, BF689110, BF847901, AV687419, C01453, R69417, H86424, T64602, Z17845, BE048635, AA477095, AA001218, AA292279, BF342895, AW939909, AW055348, BE221910, AW591420, A1693898, AW938809, AW362678, A1924575, BF879356, A1758498, BF036475, AW664221, AA001177, A1955496, A1537441, AC004552, and AX022287.
HERTO35	410	835965	1 - 2304	15 - 2318	BG114804, AV718161, BG119784, BG115294, BG163956, AV752850, AW362005, AL537244, AA425593, AW579708, AA193122, AV732860, AA778426, AW367244, AW856936, BF377273, BE675130, AW292921, BF978611, AA194252, A1937228, W63710, A1222740, BF349929, A1348188, AW856088, AW665835, AW005582, AA025880, AW959277, BF333804, A1753237, A1417243, A1339985, A1139606, A1972128, A1126585, W52543, AA829354, A1088259, BF333819, A1302240, AW675446, A1078819, AW857034, A1628857, AW005637, BE789386, AW516855, A1083537, A1299395, AA035526, A1492529, AA932845, BF969574, A1682947, BF375157, A1334135, A1923621, A1268859, AA425629, BF818440, A1635633, BF804458, A1022376, BE350523, A1580195, A1085676, BE547828, A1138968, AW102884, BF333807.

					AI920867, AA005425, AI240384, W52544, W39677, AI087384, BF333811, AA227905, N49885, BE539364, AI933336, AI670129, AA232843, AI221780, AA253379, N98508, N71409, T60255, BF761279, AA004925, AI066394, BF811217, AA311893, AW571609, AI302764, BE888442, H29427, AI080166, AA808646, AA844294, AI299456, AW265722, AI147714, AA464423, AI342664, BF807121, AA765193, AA293625, AA876118, AI074827, R60024, AA233282, AW302271, AI693779, H43349, AI245406, BF929843, AI446122, R24873, BG118726, H12893, AA995705, AA005426, AA934521, AI753445, AI445689, AI061151, R60084, AW366962, R44689, H38317, T90537, W44818, AA253378, H43212, AA193460, H78422, AW378644, AA934622, N99734, AA974340, BE049268, AI949379, AW102871, AA719170, AA807276, AW149309, AA464422, H78222, AW265649, H40537, R68103, AI277059, H43181, AA430350, T34512, AI076849, AI092386, AA347001, T81330, AW589372, N42654, H26609, R43362, BF735808, BG231066, Z40090, BG248899, AA334085, Z42420, N31595, AW378680, R21027, R68147, AW468701, AA257048, H58243, AW058593, AA004926, H38286, H12894, AA886683, F02035, BF593823, BF131565, AI559907, AL134712, F05789, AW062917, H43311, N49990, AA295950, AI364249, AI080028, R52133, BF748425, AA778257, D82555, BF804455, AW379516, T81506, AA347002, R52222, BF377711, BE002789, BF735672, T83072, BE005358, H26654, BE082628, AA227588, BF092102, BE774491, R19441, BF092109, AI382725, AA169731, BF807108, AA936648, F01928, BF858654, W31073, AW367337, F06985, AW378675, BF765476, BF858661, BE082824, AW864790, BE766279, AA946635, BE709973, AW383268, BF917259, T61637, AW997055, AA304629, R17644, AI002910, AW996944, AW383275, AW996855, AW383260, AW383146, T24808, Z99943, AK024700, AX013163, and AA425423.
HOHCB06	411	836191	1 - 605	15 - 619	AU133135, BG168529, AU125669, BG003223, BF996340, R47419, AK001707, and AK022708.
H2CBN10	412	836762	1 - 1195	15 - 1209	AA307802, BE167429, AW847394, AW609384, AI523577, BF367034, AI743228, BF332768, AI492174, AI798703, AI084062, W22441, AI003575, AI355318, AI452975, BF512149, and AI470192.
HBJNB08	413	836997	1 - 2280	15 - 2294	BG168908, BE669599, BE559886, BE671245, AL039242, AW574499, BF035202, AI817157, BE551031, BG058530, AI742018, AW504483, AI685441, BE549639, BE869110, AW500613, AW503295, AW513121, AW167429, AW500336, AV661781, BF446667, AA587395, AI961516, AW575813, BF438087, AW364816, AI765818, AA584374, BE799849, AI651724, AI800997, AW937184, AW575819, AW438897, BE503201, AW503486, AI637483, AI829845, AW009504, AW504274, AW518691, AW272519, BE267561, BF891128, AI279109, AI276513, AW166344, AI143557, AI273342, W56046, AI185723, AI471654, AW501952, AI281077, AA190380, AI310063, AW503285, AA159740, AW004740, AA280638, N73283, AA132689, W86235, AI689171,

					<p>AI735565, BG036831, AA836560, AW130761, AA522514, AW129199, AW364811, AA625247, AW572342, N91945, AI224939, AA282004, AW364805, AI431950, AV661906, AA159610, AA580462, AW407894, W00701, AA541247, AA564425, AW295551, AW768660, AW504085, AA862370, BF801898, AA627299, BE463915, AW451417, W07451, BE300058, AA022631, AI796881, AA936243, AW605271, BF087798, H20906, AI216092, AI689636, F02785, W02331, N68375, W02301, AA723803, AW579427, T36036, AW408204, BF931164, BF804743, AI940700, W86262, Z43375, N69053, AW008968, F09459, BE707039, N41561, AA376661, AA580447, FI1811, AA836418, AW505030, AA642416, AI866285, Z45807, AA533194, AA456569, BF798123, AW272544, AA022778, AI696746, AA553695, AW051076, AW062930, AI439991, AW449051, AW770179, AW605256, F08564, AW768397, N81090, AI625463, BE925275, BE814396, AI401779, AI611677, BF446360, AW856279, AA978095, F04771, N73077, AI939992, F04674, AW401415, BF827507, AI301465, Z20150, BF512890, AW795379, AW407546, AI269788, BE832751, AW753775, BE974107, AW879506, AW874245, AA190789, AW805911, BE769247, AK025282, AB018289, and A74692.</p>
HHAMF80	414	837474	1 - 803	15 - 817	<p>AL526596, AL526715, BF672476, BE874145, N67509, AW606346, Z19454, AI421808, BF686638, AI421699, AA906877, AI128103, BG150321, N55943, BG023772, AF114494, AF162707, AF114493, AF266850, AF266848, and AF266849.</p>
HDPUR66	415	837522	1 - 829	15 - 843	<p>BE254640, AA088854, AA852449, AW380030, BE775113, BF753622, BE144774, BG115298, AW083330, AW753578, AF227905, AK023671, and AF200359.</p>
HBWBX66	416	837523	1 - 735	15 - 749	<p>BF880772, AA333308, BG115298, BF370277, BE144774, BF800471, AA085901, AK023671, AF227905, and AF200359.</p>
HMHBR95	417	837526	1 - 670	15 - 684	<p>AW574753, AW007117, AI348176, AA621833, AI829871, BF732563, AI280136, W96330, AA748366, AW968242, AA255609, AA948690, AA018866, T23657, H85940, H85573, AA017115, R85834, AA018636, AI022939, AA017238, AU134521, BE269699, AL536302, AB031051, AF104334, AL357033, and AK023410.</p>
HEGAU68	418	837527	1 - 491	15 - 505	<p>BE389141, BE389626, BE391847, BE390520, AA057228, H85626, H39014, BE937870, BF725625, H37972, AI907720, and AA013159.</p>
HMEAD61	419	837597	1 - 2649	15 - 2663	<p>BE729647, BE789481, BE386405, BG258301, BE515074, BE280391, AI459129, BE644930, AI660728, BE894488, AW749978, AW169336, AW370341, AA719364, BF439379, AI361918, AW188152, AI690424, AW452738, BE904978, AI810025, AA281766, BE890960, AI150426, AI587146, AA630686, AI160979, AI741787, AA634292, AA824631, AW900280, AI689370, AA233695, AA351589, AA769227, AW264224, AW029513, R41719, AI985709, AA634567, AW269038, AW674550, BE886173, AA351643, H23984, H22704, R36553, AI819095, AA973659, T58501, AI538888, AW661810, AA649086, AI933293, AI673569, R32827, AA973736, AW273585, AI497846, BG057154, AI364341, BF755875, BF927524, BF963119.</p>

					AW615711, AA356192, BE501436, AA937403, AA353188, R17171, AA922835, AA026761, R27062, AA280121, T99539, AW408651, R32930, A1796641, BF927128, A1537859, A1250269, D81030, AA693444, R27063, A1723591, A1735956, BE383830, N56014, BE890564, R06448, AA126901, BE732309, A1276126, A1963082, BG222601, AW964936, BF345885, BF448000, AA806733, AW802995, BF346206, BE733387, BE383286, BF755869, BF125887, BE777790, AW410405, BF307973, AA905213, BF346212, T58551, and AL035681.
HDJDF94	420	837726	1 - 465	15 - 479	BF343694, AU126910, AW970004, BE907577, BF676791, BE788909, BF813629, AL533833, AA588382, BE731437, BE737688, BF967077, BF725223, BF207957, BE564507, BF208159, N80329, R22829, BE772590, R17380, BE866037, N94214, BF965044, BF208977, AV657236, BE272694, BF210281, BF949650, T69554, H70673, A1928801, R52799, H17761, N91665, H55988, BF725860, AA235201, AA193652, BF243020, A1917109, BF184855, AW003912, BF211115, A1080595, AF151861, AK001347, AF153605, and AL023581.
HKAJL51	421	837785	1 - 573	15 - 587	BF696654, BF218442, BG167651, BE149009, BE544501, R43179, AA159953, AW474222, W81455, and AK027201.
HODGZ47	422	837858	1 - 1887	15 - 1901	AV714319, BE245435, BF085080, BE883963, BE315412, T67179, BE731249, BE732012, AW501306, BE077539, AV702985, AC007041, AF315591, and AF315590.
HTJMQ74	423	838145	1 - 1484	15 - 1498	AA709155, BG119984, AW519003, AA877551, AL200706, BF338058, AV17315, A1422381, AU150354, A1754711, A1333933, AA548510, AU118207, AA419622, A1753594, BF577095, AA243811, AU144834, A1961432, BE926182, AA599372, AW316693, AW241333, A1474277, AW797789, AA417659, A1242450, A1393312, AA643987, H92371, A1089479, AW999395, AA243499, BE145749, AA758663, BE184602, T25086, and AK000996.
HOHCE56	424	838619	1 - 2334	15 - 2348	BE746374, A1743383, A1189480, AV728988, BE899408, BE746781, BE562186, BF347181, BE561742, BF530313, BE294788, AV722367, BE297333, BF309493, BE743200, A1952007, BE299126, BE397775, BE268309, AW571554, AW952382, AW268367, AW269905, A1730259, BE857180, AA994030, AA639694, BF310849, A1039861, AW469101, A1280124, A1813888, AW087805, A1400646, BF434700, A1095733, AA843902, BF527954, A1056993, BF507388, A1040027, AW043686, A1184877, BF727202, BE019740, AW001144, BF305457, A1221461, A1744692, AA939338, A1188291, BF060991, AA884553, BF111321, BE222971, AW078707, A1354719, A1362107, AW239541, BF058113, A1961777, AW468853, AA620650, BF058488, BE327064, A1782108, A1631591, BF307205, Z98493, AA601020, A1123005, A1281234, AW300196, A1371785, A1983407, A1907175, AA977540, Z98494, AA037644, A1971518, A1696796, A1291368, A1193049, A1805625, AA028948, AA654142, AA424708, AW068434, H18114, A1042264, BF945716, BE902648, AA035346, A1085855,



HLJB145	425	838808	1 - 775	15 - 789	<p>             AW075664, AI189906, N50916, BG152447, AI192226, AA137064, W65336, AI147886, W86749, R55061, BF923686, AA584282, AA621825, AW068276, AI018251, AA028947, AA954337, BF868739, R48880, AA082844, BF871643, H50357, BF940371, BF931509, H03762, AI991634, AA613635, R74334, BF740062, AV721662, AW051544, N26167, W96508, W65306, AI298050, AA137135, H27911, BE206342, AW015653, AA885454, N71800, AI750973, BF929294, AW067959, AA236213, AV723825, AA984404, AI744638, AA419024, R68793, BF594397, AI741716, AI742212, R69300, R48488, AI991641, BF923702, AA984360, AI142695, H02866, N26168, AA295172, R55030, H42461, R69284, N50788, AA022527, R48489, AI475336, AA668542, H14200, AI219092, H18159, R25771, R74427, W35175, H46438, R69301, T48913, AA452705, R69285, AA989514, AI219145, AI468487, BF357697, AA295171, T48912, BE702963, AW733005, BF928802, AA904744, AW014159, AW444859, AI272234, BF514530, AI085799, AA083138, H43664, R48776, W87321, R26607, AW581330, D59307, AA377483, H42862, H44735, T12571, BF997408, W20398, AA358896, AV751736, BG014799, H50395, AW068024, BE294110, BF956105, N55145, AI915948, BF932203, R73224, AA037643, AW834928, AA450064, AI185266, W96475, AA236214, AA975214, BF941646, AW244038, AW578281, AA022459, R25786, BG007442, BE767081, AA326207, AF177203, AB040935, AF218016, AC006312, AC006312, and AC006312.           </p> <p>             BE732828, BE781977, AL527780, BF026407, BF684507, AL527781, BF725812, BE780848, AL519895, BE736231, BE728826, BG105762, BF036674, BF681153, BE387517, BF213309, BF667921, BE782483, BE787075, BE390815, BE778881, BE779179, BE563797, AV759501, BE513040, W52852, N34255, AW160399, BF679234, BE960859, BG254402, BF239121, AV751872, BG033941, N30499, BG170723, BF972946, BG025562, BE276608, BE876001, BE883738, BE784090, BE440008, BG252431, AV721356, AW239079, AV711565, AL519643, BF036389, BE904995, N42142, R20300, AA312807, BE380086, AL519894, BE280989, AV734719, BF691779, H70394, N23533, H73369, BF028243, AW407963, BF697509, AA455701, BE253888, BE739508, BE874970, N43927, AV725874, BF217992, R97376, W19497, H79944, BF726887, BE739243, BF084806, BE961088, BE778879, BF195663, W31972, BG165235, AI631124, BF244338, BE894109, AW407596, AA302225, BF516510, BF440019, BF701098, BE866570, BF440052, BF182781, AA132425, AA305409, W80575, R07414, BF666742, AA182911, T70776, H73299, AA127810, BE543360, BF666828, W76420, AA120782, C00198, AA024761, BE254564, AA229940, AA307572, AL519642, AA309712, AA093843, AA364785, BF248231, AA045678, AA326688, T85051, AA639784, AA223846, AA176320, BF971153, AA230126, AI245848, BF593734, AW407906, AI088520, BE019593, BF749645, AA035464, BF243942, AW175673, AA329750, W07289, AI719084, BE675483, AI984009, AI719711, AA332809, R57473,           </p>
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HSCL04	426	838860	1 - 1002	15 - 1016	AI282710, AL121712, AC008569, AL109797, AL138733, AC002369, AC007216, Z93015, AL031311, AF196779, AC005837, AL109827, AL109823, AL139342, AC009032, AL118525, AC005740, Z84469, AL021453, AL096791, AC004905, AP001717, L44140, AC009060, AC011311, AC004686, AC005736, AP001725, AC011742, AL136132, AC004217, AL138807, AC005520, AL117381, Z99716, U91318, AC011491, AC005562, AC011495, AP001716, AC005046, AC004965, AL022329, Z98742, AL137073, AC007298, AC005920, AC005972, AL133387, AP000114, and AP0000046.
HJBR52	427	839006	1 - 1244	15 - 1258	AL522826, BF971476, AV706728, BG258636, AA444396, AV706427, BE568645, BF000392, AI525744, AI991353, BF792197, AV707298, AA101469, AA419167, AA401605, AA633141, AA827143, AI692194, AA214618, AA157004, AW051537, BF838603, AI904815, AA566141, AA566144, AF125531, AC003083, AC024947, AB028070, and AB028069.
HSLEK65	428	839237	1 - 867	15 - 881	AC023823.
HWGAF42	429	839272	1 - 860	15 - 874	BE730331, BE730328, BE966948, AW373793, AA53665, BE932271, BE674212, BF570050, AI184600, AW004692, AI190674, BF438824, AA482462, R45646, AI521134, AA973962, AA211375, R42556, AA720003, H11452, AW966533, AW966529, AW009222, AA417872, AA632195, R52677, AI360146, AI366341, R61892, BF207156, BF963111, AA720022, BF527830, Z41453, BF889044, R87776, BF889041, W38313, AA483558, BF888313, R55720, AW996106, R43749, T30657, H95699, R86859, AA426408, R10214, BE878555, R87766, R87830, T15918, T78493, T34747, F03602, T16643, BF317404, H50912, H08592, AI302317, BF961295, Z99411, AA643729, BF570021, AA363950, R43750, BF960575, AA522619, R41527, F02068, W84692, R43495, BF314907, H95698, H52035, AW947289, AI092517, AI291295, AI570476, F07877, BF570107, AI951902, H38986, AI553790, AW268395, BF511319, AI312547, AI344432, AI343814, AW450243, AI681390, N44903, W84640, AA614791, AF131749, AJ245820, AJ245821, and AJ245822.
HOUA63	430	839547	1 - 1586	15 - 1600	BG250786, BE798417, BF972677, AU117691, BG032152, BE904223, BG030936, AW381277, AW245141, BF183133, BF125868, BG015801, BE728395, BE613692, AI868951, AW381279, BE697890, BE697876, AW381280, AA211485, AA579574, AI566968, AW418543, AI078750, AA568661, AA604128, BG015805, AI961134,

HLWAW3 6	431	839561	1 - 1456	15 - 1470	<p>AA565823, BE275928, AA767424, AW630709, AI188982, AJ948620, AW952485, H49462, H97012, AW381263, AW627376, AI369641, AI283644, AV696925, BE386638, AA748475, BE841619, H49463, BE703259, BE185759, T87152, BE772335, AW956823, AW956054, AA827171, H75949, F22114, R02581, T31504, Z42997, T89930, AI379281, BE903668, R27657, T87057, AW381575, AA322268, AI254734, AW884300, AI473328, BE042945, R02700, AA576177, AA211532, AW149142, AA129383, AA005034, AI114471, AW008764, BF082720, AA425564, AA348159, AW606262, AW150911, AI014302, AW383774, AW383735, AW383777, AA322497, T83607, BF841083, BF837368, AA019517, AW383750, AU144458, BF798273, BF841536, BF841582, AW383744, AA026869, Z39829, AA814308, N67589, BF842440, AW372004, AV724468, AW008757, AV724654, T83782, AA644513, H67997, AW381555, BF089279, BF087060, AA004420, AI670733, T62593, AA910241, AA007691, AA456251, BE065664, AA132360, BF197353, BE221734, BF842421, AI279767, T62521, H75334, AA333601, AI809410, BE677881, BE763412, BG111826, AI380647, AI057250, AW295873, AA004558, AA341266, AW578194, N73865, H84690, BF819202, AV702030, AW192634, AA004484, AK021559, AL137520, AF155114, AF176704, AF174597, AB041585, and AL031178.</p> <p>BE901396, BF529256, AL522797, AL517020, BE562340, BE901446, BE785677, BE735080, BE901630, BE396429, BF204575, BE560942, BG036666, BE560760, AL516756, BE561305, BE882085, BE747218, BE560921, BE514448, BE514008, BE560840, BE785555, BE513446, BE396356, BG259333, BG253449, BE513910, BE560651, BG117669, BE793334, BE559972, BE268144, AI458014, BE397537, BE207639, BE408440, BE734427, BE270764, BE270009, BE908096, BE910661, BF797549, BE559822, BE561007, BE383095, BF342791, AI133257, BE618482, BE780307, BE882719, BF184142, BE397920, BE560823, BE262677, BF038563, BE383267, BE397148, BF109949, BE890675, BG036683, BE905703, BE396362, BE779277, AW604907, BF312365, AW604901, BE891148, BG251395, BE410703, BG253972, BG171410, BG113345, BE903833, BE379383, BE732486, BE560730, BE293324, BE740344, BE902094, BE280938, AI697165, BE295456, BF969680, AA642239, BG015755, AI818876, BG249520, AA411035, AI434288, AI271514, AA159213, AW733057, BE746162, AI571352, AA865735, AA970105, BE730925, BG015756, BE732514, BE264212, AA293139, BF207331, AI371320, AI536699, AA134979, AW248707, AW182002, AI198061, BF206263, BE262479, AA621552, AI261681, BE513998, AI991804, AA344380, R61634, AA372216, BE312473, BE790243, BE260676, BF568388, AI810573, AA419241, AI685434, AA371478, AW009777, AI699206, R60967, AA652700, AI688845, AI089210, AW007141, AA985082, AA135004, BE780144, AI028220, AI369965, AA489594, BE396143, AI739141, AW383812,</p>
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HDPHI63	432	839704	1 - 440	15 - 454	BF525949, BF343049, AV689909, BF342466, AW953836, AW953891, AA640081, BF339231, AW629891, BF526118, AA371827, BF821349, C17007, AA485613, AW953834, BF737942, AA368991, BF821339, R62666, R47871, N90491, BF821354, BF878968, H42114, BF879161, AA295668, T95371, BE769808, BE140683, H01130, T27046, AW374237, H70128, H64116, H01871, BF879241, BE769826, BE769806, N45434, H89819, I72232, H64951, N47826, R17629, H27838, H26462, and H83150.
HTEPM45	433	839875	1 - 1949	15 - 1963	AL521148, BF966836, AV715670, BE619857, BF972274, BG122696, BF342733, BF525757, AU142917, BE619242, BG178404, AV713997, AW950883, AW372581, AA877904, AA442710, AW372587, AI770174, AI539441, AI633309, AA625121, AA490194, AI336242, BF695459, AI361039, AA773718, AW082708, AA913955, BE873985, AA625245, AW372585, BF361430, AA127749, AW015838, BE350164, AW673765, AI962383, AI951420, R25792, AI684313, AI432514, AI435855, AA229604, AI423475, BF130287, BE785728, AA233020, AA804544, AI431531, T70290, AA826095, H29402, T87869, H07001, AA156095, AA229914, T17472, AI287493, AW576352, T66752, AI094976, C04205, T66751, T87958, AV732952, AA235237, AA101130, AI027567, T17473, AI243842, AI568315, H15839, AA853458, H11749, T28950, R12843, BF962452, AI690921, AW269644, AA783031, BF800198, AI654882, AI378497, AA934605, T79599, H11826, H68911, AI218090, BE964217, R46791, T79683, AA337227, H19387, AA496055, C03988, AI586994, AA887922, AI044683, AW169886, R20752, AU125527, AI869101, AA994515, T95521, BG236017, BF000089, AA229696, BF438215, BE910228, AI370468, BE327803, AI139882, H16148, BE894248, AA883256, T80865, AI359674, AA771780, AA844103, M55905, and AI294818.
HTEBP06	434	839885	1 - 1368	15 - 1382	AW515779, BE463744, BF438413, BE503424, AI651813, AA853961, AI638483, AA977048, AW294422, BF062258, BF062332, AA470124, AI200932, AA382887, AI806448, AW072392, AI638774, AI936476, AA725656, AI651860, BF057853, AB050257, and U76377.
HSKYK23	435	839888	1 - 1106	15 - 1120	AA748038, BE619966, AI672094, AI638836, AI087271, BE463907, AI674881, AI862582, AW578455, AW515113, BF334278, AW300485, BF691245, AW368459, AI992141, AA422171, AA418478, AI417139, AW368538, AW274441, BE961013, AA422079, AA747837, AI650427, BF674559, AI913009, AI679623, BF242737, AA773231, AI831210, BE695999, AI366110, AI244783, AI434442, AA424690, AI128938, BE696000, AI766204, AA921948, AI082308, AI206146, AA436375, AI039316, W04874, BF056542, AA976333, AW235164, AA481306, AA476535, AI092299, AI990193, BF334284, AA150673, AW139793, AA128482, W46348, AI399894, AA476430, W01258, AI784656, AA143300, AA150797, N45370, AW467125, AI261243, AW976208, AA954088,

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HBUAD85	436	839958	1 - 1228	15 - 1242		

AV706915, BE672647, BG166654, R32821, BF672397, A1932638, AW827227, BE885353, A1620639, A1635067, AW303061, A1887765, A1783504, A1308035, AW268060, AW302992, AL036980, BF724894, F35275, AL037030, A1702301, A1348854, A1340511, AV741327, A1611348, AC002452, X84990, AL137292, AL137550, AL390154, AL080124, AK000614, AK024538, I89947, AL080074, AL157482, U72620, AL122049, A08916, AF183393, AL353956, AL389939, A08910, AK026528, A08909, AF130099, Y14314, AL117435, AR038854, U67958, I48978, AL162002, AF130066, A08913, AL122123, AF118070, AJ238278, AF155221, AF061795, AF151685, AL157431, AR011880, AL080060, AB033881, Z82022, AF090934, AF067728, AX042059, AL049452, I89931, AJ000937, AK027116, AF116682, AF061573, AF119883, AF113019, AR087170, AK026526, AB050410, AB047904, AB051158, AF217987, AF079763, AL133557, U35846, AF113677, AL133640, AF153205, AL359601, AF158248, AX026824, AX026823, A58524, A58523, AR020905, Y11587, AK027213, AF242189, AK000206, X72889, AR000496, U39656, AL117585, AF116631, AK026532, AF314091, AK000618, AK000418, AF130100, AK026744, AB048974, AK026462, A03736, I68732, AK024524, AR083266, I03321, AL050024, AF162270, AK026947, AF026124, AX046842, AL389982, S36676, AL137557, AK000647, AF116654, AL080148, A08912, AK026593, X82434, AL049466, AK027096, AL162008, AK025967, AX005848, AX005804, AX020124, AK026647, S61953, AF116676, AF126247, AF119899, AF097996, AL133093, Y11254, AJ242859, AK026959, AL137459, AB050431, AK026542, AB052200, AL133016, AL117440, U42766, AF155148, AK025084, AF116691, AX040958, L19437, AK024992, D83032, AF218031, AK000432, AL137560, A08908, AB048954, AK027146, AK000753, AF130077, U91329, AF130082, AF185576, AF056191, AF106862, AL389935, AF230496, AF130104, AF003737, AF113690, E03348, AF017437, AL137478, AF217966, AF119865, AK025339, L30117, AB050533, AK026762, AL137480, AL122100, AK027144, AK026627, AF090903, AK025524, AF321617, AF139986, AK026504, X63574, AF061943, U58996, AK024588, A18777, AB048913, AK025906, X70685, AF143723, AF111851, AK027182, AF116644, AF130105, AK026506, AL117457, AL050116, AF262032, AF125948, AF138861, AL137533, AF111847, AL050092, AL050393, AF057300, AF057299, AL110280, AF026816, AF111112, AL122110, Y10080, A77033, A77035, AB048919, E02349, AL117460, AF000301, I48979, AK000323, AL110225, U00763, AF113691, AF113013, AL049464, AB049848, AK026534, AL050277, AF078844, AF091084, I26207, AF118094, AF132205, A65341, AL137463, Z72491, AK026741, AB046642, AK025573, X92070, AR079032, AL050108, U80742, AL122093, AL117432, X96540, AL050366, AK026855, AL133067, AL359941, AX046603, AL080159, I33392, A90832, AL137271, AL442082, AL117416, AX040974, and AF130092.				
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HCEIN85	437	840000	1 - 1971	15 - 1985	AL521658, BE739899, AL537917, BE796545, BE795494, BE796051, BE798186, AL528746, BE781632, BF346946, BE250392, BE253830, BG253619, AL531871, BF529641, AL520255, BG180990, BE906989, BG178265, BE882440, AI440480, BF311412, BF346440, BE795472, BF528132, BF529868, BE252198, AI937005, BF346604, BE273903, BE893093, BE893674, AW071864, BE257980, BE904420, BF976000, BE294343, BF683756, BE781804, BE389295, AI564755, AA482401, BF313162, BE793749, BG170781, AI638564, AA533105, BE778083, AA482546, AL520256, AA641620, BE206843, AI281716, AV328722, BG057343, AI963493, BF686194, BE618183, BE208629, AI469386, AA804959, AW615626, BG258047, AA458650, BF568797, BG256030, BE304575, AA158523, AW079515, AI083728, AW245143, AI298185, AV743341, AA632061, AL521659, AL527286, AW316953, AA305998, BE260707, AL528747, BE266948, AI436766, BE262129, AL537918, AW196786, BE261305, BG030950, AI241942, BG256906, BE904149, AI469081, AL513886, BG178424, BG057011, BE791385, AA922280, AI146879, AI858189, AL528997, BF664170, BF238005, BE561194, AI582808, BE301326, BF128635, AI886175, BE795332, BF799598, BF184664, AI127054, CI5514, N31178, BE905893, BF530369, BF568647, AI127053, BE561245, BE274728, AI828133, AW338173, BE396972, BF568993, BE936673, AW207688, BG258840, BE895646, BE396812, BF808283, AI865168, BF530599, BE13502, BE618747, BE280443, AW878476, BE537649, D29432, D20434, BF342492, BE780664, BE273365, N22704, BF530035, BE908400, BE273376, AA429099, AA834519, BE545171, BF568686, D50914, U77415, and AK024840.
HROAX39	438	840008	1 - 513	15 - 527	BE744232, BE747972, AV728364, AI121599, AA379693, AA379373, BF342392, AA496170, BF725242, W25608, AA371731, AW372195, BE709350, AI208593, AA249784, and AK000206.
HHETF37	439	840056	1 - 615	15 - 629	AI872254, AA975688, AI872255, and AC006479.
HKAAS52	440	840160	1 - 1398	15 - 1412	AL528898, AL530733, AL530742, AL529747, AI519286, BE901487, BE790563, BE732756, BE733523, BE396351, AL525215, BG106992, BG113455, BE397032, BE397233, BF982760, BF342948, BE888515, BG118096, BE887823, AL529746, BE900855, BG023983, BE732152, BE901319, BE409368, AL530741, BG033499, AI084732, BE312929, AL525214, AW959902, AL528897, AL519285, BE549059, BE296657, BG253556, BE901744, BF966782, BF686130, BF125082, BE206925, AI147481, AI971491, BE296027, BE260435, BF125602, BF339628, BF125493, BG167442, N34073, AV749210, AA321112, BE560667, BF125316, AW513665, AI951045, BF311602, AI650663, AW058103, AA909530, BE834264, AA258103, AI971506, AA300789, N40373, BF770666, AI061239, AA600054, AI000807, AW593654, BE901119, AA969975, AA281492, AW298633, AW860213, AW026768, AI866427,

HISES36	441	840222	1 - 960	15 - 974	AI285506, AI468710, F33114, AI278754, AW770346, AA642297, AI499987, AI492103, AI863862, AI762625, TI6079, BG009469, AA989727, AA321111, AA622203, AA310412, AA622784, BF361196, AJ292529, AX001017, and AJ300588.
					AL519782, AL521031, AL537771, AL532982, AL519743, BF340693, BE792891, BG029834, BG033672, AL526699, BE883832, BE778826, BE260201, BE260258, BF115935, BE313721, AJ293555, BE537966, BF527209, BF568475, BF529551, AA351269, AI199579, R84529, Z43097, R88248, R84486, AA351822, AW998329, BG104854, H20040, BE795625, AA429839, BF969852, R85183, R87201, BE160604, BE160589, R58225, AA442608, BF238333, BE328809, BF222046, AW590915, AA477650, AI633379, AA775842, AI937305, Z39190, AA962631, AI341814, AA436850, BF511356, AA740431, AI867453, AI122658, AI339114, AI671560, AA369393, AW953817, AW292804, AW069479, AI041102, AW957086, BF508854, BF826502, AI675398, AI765639, AA917911, AA210727, AI095222, H88131, R85922, W20393, BF793459, AA044257, AA971861, AL521030, AK026982, AL034548, and AF116644.
HAPBL12	442	840579	1 - 1709	15 - 1723	AL525580, AL525531, AU136037, AU135156, BE897817, BE896636, AU133754, AU127192, BE858832, BG253874, AW962760, BF510434, AW954960, BF574918, AU160122, BF977858, BE961102, BF185921, BF215392, AI378490, BF248416, AI800985, BG034956, AA156289, AI073518, AA773818, AI963320, N99672, AA234550, D56172, BE930107, AA256954, BF244940, AW362473, AA046377, AA251743, AW362472, BF102934, BF241316, AV720349, AA156083, N42280, BF245375, AI160238, AA704119, R72972, AA112337, BF086535, BF086529, R25715, AA256645, AI525894, BF084221, BF084272, BF086530, BE961214, BF086505, BE928500, AA371062, AA320096, AA370316, AA236661, BE928494, BF084201, BF086503, BF084190, BF185469, N47760, BF084203, AA137170, M85957, AI611807, BF695980, N79724, BF086500, BF114811, BF030327, BF243876, BF154789, BF086533, BF094389, AK023459, and AB050431.
HTJM195	443	840671	1 - 1244	15 - 1258	BE277107, BE910440, BF795570, AU130228, BF792887, BG023805, BF525462, BF685514, AU129385, BG035515, BF205159, BF000802, AA780068, AW005581, BE390866, AW025527, AI871472, BF036597, BE730035, AA029831, AU151517, AW961102, W93417, AA836105, AI240879, BF695942, AI336855, AI276262, AA737662, AI189612, AI076231, AW963522, AW261921, AA857959, AA464962, AI200129, W86177, BF197108, AV649936, AI004350, AW518042, W86176, AI274473, AA994284, AI248784, R21076, AA811098, N49076, AA780382, AW078888, W92692, AI470273, AA379908, AV727913, AA378898, W92672, R20463, R46252, AA737628, AI587223, AI376292, AA029291, AI553643, AW139555, C01217, N74187, AA337611, AA633124, AA251752, AW168901, W04352, AI400947, AW248567, BF931644, AA085198, H92104, D38732, AW367085, D38674, D38745, AI351139, AW044693, D38734, AI754949,



HTEL78	444	840700	1 - 1234	15 - 1248	AA707474, BE965121, AF290195, AF146367, AK001477, AK023070, AF113540, AF124523, S77771, AK027188, I89934, and I89944. BE876668, AA633788, N58116, AA779964, AA993172, AA993810, BE972250, W02490, AA250756, AA812535, N74558, AW105026, AA323882, AI015512, BF801908, AA978273, AA912417, AA410936, AA864226, AA721605, AI954398, AA077596, AA937643, AA721388, AI692899, AI358200, D20826, BE545086, BF804475, BF848741, AI018574, AI221163, BF848765, BF081612, BE545153, BF848801, BF734172, AJ277291, AF234882, AF234885, AF234884, AC002542, AF234883, and AC003987.
	445	840811	1 - 918	15 - 932	BF979271, AW449278, BE879506, T60555, BF673064, AI792473, AW753909, AI205976, AW580518, BF131034, AA346826, BE176521, BE893411, BF694542, BE176315, BE893316, and AV713261.
	446	840896	1 - 2129	15 - 2143	AW207713, AI810396, AW966479, BE748341, BE748813, BE537890, AI302169, BE042761, AW236326, AW029389, AA450190, BG030357, AA526956, AI023982, AW071139, AI263326, AI983639, AA425171, AW382198, AA157568, BE565681, AI701334, W78960, H72423, AW371720, AW371748, AI079467, BF030000, AW958846, AA626156, W80454, AW273396, N70430, BE185286, BF511249, AA384726, AI183810, AA384586, AA296752, AI422655, AV733287, AA479929, AW009098, AA450124, T70566, AA314325, AA357632, R77683, R34229, AW802770, AW250354, R77682, AA331541, AI081752, AA333812, BF742908, AA331747, R35556, BF741669, AI560564, BE727612, AW582549, BE537776, AW245233, BE564677, BF331517, T70837, AW468924, BE696298, AW609900, AI620330, D20574, AW371723, AK026969, and AI132875.
HAJAT72	447	841335	1 - 2055	15 - 2069	AL519223, AL135396, AW978864, AL519224, BG110879, BG179154, BG167639, BG167072, AL516415, AI133979, BG170520, AW367332, BE618516, AW367242, BF695975, AI004681, AA829651, AL516416, BG150372, AA287338, BE785672, BF669485, BF001602, AW952891, BF793907, AA287324, AA173276, AA126774, AW673513, AA210721, AA205833, AI075920, BE926877, AA210826, AA688155, AI630319, AI376711, BE892332, AI026835, BF982501, AI858354, BF337294, AW367328, BE542574, AI630566, AI630392, AA504314, AW070942, AA836121, AA489233, AI028632, AA598962, AW602275, BF242269, AW408375, AI206140, AI915314, R22949, W19388, BF688156, BF795195, AA599018, AW104080, BF910961, BF796284, BF243265, AA934545, BF239711, BF769690, AA831728, R78445, AA342412, BE697504, AW593702, R23055, BE047778, AW013923, BF309124, BF088965, BF736758, BF795590, BE697505, AW403341, AA342411, BE711348, BE907981, AI343050, AW268252, BE694275, AW301946, AW390121, BE000774, AA628867, AA206272, BE694298, BE711346, BE697502, BF736767, BE694249, BE694259, BE694286, AA173149, BE694241, U46258, and BF308651.

HTLHK92	448	842395	1 - 612	15 - 626	BF344166, BF999691, BF569907, H52351, BF999694, BF337899, R69911, AA421401, BF127938, BF570393, T49326, AA359077, AA330666, AX018076, and AF186469.
HAGBQ10	449	843516	1 - 1466	15 - 1480	BF968525, A1246710, A1763071, BE674657, AA460540, BE328200, A1168314, A1611086, AW451887, AA460541, BF675159, BF507593, T16448, T08984, A1016123, H24284, AA668246, A1223180, AA971942, R60880, BF590051, R23514, Z38546, R43444, BE701712, AW961900, AW182351, Z20913, AA972023, F05576, Z20948, A137748, AB046764, AF072371, Y18276, AF072372, A74680, and A74602.
HCRBB73	450	844034	1 - 1403	15 - 1417	AL523131, BG261097, BF340183, BF305691, BF035093, BF303873, AW196621, BF306489, BG121861, A1870592, BF311037, BE205899, BF315962, BF369701, A1418236, BE672680, BF304287, BG055835, BF431529, AA341046, AW139473, BF090415, BG104844, BF059456, A1632174, A1968214, A1970377, BF378475, BE261334, BF437294, AA302039, AW796541, AL523132, BE937882, BE746585, AW367194, AA835104, BF758565, A1990177, BE825241, BE019361, BE206717, and AB029017.
HWHHU1 I	451	844529	1 - 2048	15 - 2062	AL522002, AL521608, AL521607, AL522549, BF305304, BE732838, BF971112, BE743976, BE262711, BE899550, BG109203, BF344719, BE741195, BG248593, BG115015, BG117962, BE883834, BF688906, BG249430, BE410162, BF316646, BF982386, BE281306, BG164142, BF793440, BE272171, BE901175, BE409982, BE901577, BG165427, BE729126, BF569778, BF982251, BE872442, BF970528, BE735023, BG166435, AL522001, BE410692, BG109330, BG116617, AA206373, BE736037, BE299415, BG249255, A W579408, BF340859, BE744899, BF570295, BG170896, BE386152, BE546682, BF673757, AW964395, BF340242, BF305644, BG251248, AL521166, A1905440, BE547252, A1905525, BF183244, BE301893, A1961339, A1884509, BE280374, AA142829, BF237978, AA039438, AL522550, A1189410, BE018945, BF968375, BF807239, AA318302, BE281612, BE779176, A1871802, A W732476, AL521165, BE018944, AW663672, A1185017, A1473764, AA922287, BG025351, A1677950, AL532064, BG108566, AA121661, A1052759, BE388318, BE349225, A1828786, AW662459, A W250139, A1086493, AA903122, A1678707, A1720105, AW571711, BE207861, BF675911, A1347904, AW956985, AA580387, N25780, A1624202, A1188539, AW268633, AA481905, A1302604, A1376533, AA630400, AW182583, BE122842, A1570190, BF753347, A1419954, A1689084, A1696156, BF878947, AA158660, A1814113, A W000854, AW675147, AA159025, BE742694, R99569, A1357664, BE047488, AA307924, A W005618, A1752100, BE743048, R45648, W21970, A1628527, BE870251, R99920, AA954481, A W193234, A1679473, A1554473, A1560258, H20615, N39758, H53221, H53115, AA186671, A1439924, A1288336, AA128573, A1184323, BF222290, A1432912, BF940624, A1590039, AA588482, BE247774, R99741, A1886981, AA843226, H57919, A1933122, N44679,

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HRAEB76	452	845247	1 - 1513	15 - 1527		BE670499, AW243355, N66545, AW612426, BF674012, AI435149, AI432143, AL515165, AW070187, BE540051, AW104479, AW274134, N98785, R76933, AA909433, AW087681, AA037531, AI914469, AI382043, AA625299, AA579805, AA133208, AI949288, AI985348, AI700297, AW571775, AA037427, AA970155, AI867878, AW976779, H87705, AA776877, H87196, R71139, N46113, AI358657, AA814377, N64190, AA812771, R71639, AA317842, U89885, AI868799, BE242115, R47844, BG114598, AA504754, C20783, AI955462, and AK026276.
HPJAO13	453	845355	1 - 749	15 - 763		AI655754, AA333460, AW370405, BF960997, BE169979, BE077089, AW975620, AA776153, BF985194, Y08474, BF351270, AC006017, AK025287, and AK026056.
HHENF67	454	845465	1 - 803	15 - 817		BF893887, BG168409, BG167900, BF030549, BG170012, AC012312, and AC008534.
HLQDC55	455	846521	1 - 525	15 - 539		AA199865, BE901642, BE730874, BE391709, BE466924, AI769428, AI061340, AW268880, AA707168, AI970984, AI884812, BG149869, AW444872, AI479954, BE220097, BF002310, AW590535, AI701720, AI356088, BE503614, AI765045, AA722812, AA410516, AI267987, AW236544, AA005114, AI298592, AI865503, BF432858, AI633370, AA878382, AW389168, BE895750, AK000766, AF118838, AX004413, Y17571, AF164632, AC012156, AK025227, AF164526, AF164528, AF164527, AC004458, and AF164525.
HTTJW49	456	846674	1 - 647	15 - 661		AW968529, AW968703, BF590615, AI761179, AI651733, BF062638, AI056223, BF247343, AA426281, AI860123, AI566334, BF222797, AI650743, AI911944, AA699297, AI078184, AA627742, BG249594, AI192849, AA598410, AA938710, AA210770, W88803, AA485080, AA705470, AW971463, AA641836, W88802, AW971475, AA485191, AA211899, AA215562, R82360, BE698664, AW008873, BF851964, and AK026839.
HSYAD28	457	846772	1 - 1675	15 - 1689		AA449919, AA449920, AF119815, AF257210, and AF268899.
HLWAR77	458	847144	1 - 1265	15 - 1279		

HCE2W33	459	847388	1 - 2032	15 - 2046	AL521424, AL523210, AL514620, AL536205, AL525645, AL537131, AL521425, AL523209, BE739509, BF965558, BG031889, BG258324, BE891149, BF311286, BF530602, AI057627, BF182863, BE560984, AI479627, AI514619, BF037516, BE314805, AI859259, BE297709, AI523551, AI660477, BE797143, AI885132, BF038307, BG027266, BF966086, BE388115, AW958486, BE382803, BE560800, BG115029, BF206872, BE268774, AW958520, AW170144, BF345159, AA779831, BG104568, BE276916, AA699996, AW001491, BF793361, BG108512, BF691744, AW955061, AL527427, BE739244, BE314640, AI191325, BG122405, BE548451, AA779172, C18348, W60861, AI814375, BG119829, AI267877, BE780354, AA434226, AA557294, BE560620, BF338341, BE262392, BE560215, AL037181, BE536344, AI371147, BE782287, AI149368, AI191738, AA449960, BE018452, AW574717, AW009827, AA324535, AI523552, AA434312, BF206512, BE856127, BG170162, AA916827, AI056484, BE387175, AW148512, AI401735, W42799, AI341747, AA846389, AI520661, AA173280, AW962582, AA773096, AA612929, AA223353, AA405603, BF929696, BF751515, AI741705, AA582585, AA223253, BF206870, AA255640, AV647239, AI952905, AW300754, BE252212, T32945, BG109634, AI952061, AW167381, AW408419, BE295519, AW518702, BE882636, BF305409, AW589482, BF087318, AW084813, BE302065, AA188656, AL037180, BE261658, AA410555, AA708856, AA873019, AW957316, AA173203, R90786, BF849877, AA312624, H39026, BF939729, AI202617, AW967939, AA612830, R85547, N35339, N74258, AA857247, H41500, AA559142, AI611415, AA953999, AW272284, AA578247, BF931945, AA826989, N95254, R87593, BE857465, AA284487, BF929625, AW338532, AA516267, W60737, F12777, H39797, BE243900, BE709158, F11343, R95140, AW517268, AW166856, F32639, R34417, AI623493, R87508, AA309639, H41555, N89722, AA826718, AI361539, T31070, H14134, AA257998, BG167097, BF002936, R85567, AI864037, AA258866, H68648, W24549, T32944, H85256, AI611540, AI244230, AA825443, Z46220, AA213790, AI869008, AA410556, T32946, BF791959, F10385, T75048, AA405546, N55535, BF940204, AL036822, AW403313, AA213875, AA074090, BE560217, T30898, N76421, T31929, AW392209, AW958525, H14093, AA604307, Z45387, BE077235, AA903640, R85944, T35924, T23531, AA857144, AI361274, AI278090, AI002669, AW580277, H39051, AA224282, H84923, AI187996, AW467485, AI340553, R88874, AA075982, AA401201, BE243365, AA188558, AA378194, AI350817, AA380570, Z41846, W42691, AA857402, AI282309, AI972748, F09003, H14136, T68752, R48954, AX013711, AK025329, AC004771, AL050060, AL079315, A75494, AC004771, AC004771, AC004771, AC032038, and AC032038. BF508798, AI829099, AI126506, AI200037, N25625, AI128843, AW024969, N34223, N36303, AW020616, AA605122, AI217597, AA743134, N26904, AA729493, BE857354,
H5OAC39	460	847431	1 - 702	15 - 716	

HAJAV01	461	847551	1 - 897	15 - 911	AA568193, AI160533, AA568681, BE855663, BG054946, AW450603, AI695490, N24885, W52651, AI802647, AA648514, AI312534, AA806507, N72137, N35103, AA729125, N34254, AI219599, N39790, H86995, R73200, N26781, AI032141, N25653, H86994, W00385, R73137, AW298649, AA296449, N28403, R26304, AI299683, AA988539, AW452862, AW453038, AI361669, AI039557, AI674252, W52017, AW236299, AW515490, AI452444, AI141901, AA768761, AW629545, T25829, AW074182, AI984739, AW583163, AI805445, N20053, BF958127, BF964329, AA543074, BE081422, T25828, AA358828, BE152130, AA653691, AI362330, AW606102, BE170656, AF238079, AC073610, and AC073610.
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HWGQC6 7	462	847568	1 - 1049	15 - 1063	BF676673, AW361928, AW370592, AA029045, BE464022, AW955794, AI360473, AI074083, AA331716, BF755692, BF475271, AI913154, AI873811, H03163, BE093260, AI417501, BF919980, AI934369, BF001451, BE088349, AI791728, AW466890, AF311320, AK025993, AJ269529, AP001747, AP001625, AP001626, and AL355683.
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HFJIC17 HBXCD74	463	847634	1 - 712	15 - 726	BE270761, BE560646, BE396923, BE513879, BE267678, AW834931, BE559852, BE513327, BE270061, BE872948, AL045780, AW590225, BE268811, AW970178, BF940066, AI376010, AW072377, AI401550, AW953330, AI362753, AW005335, AW575918, AI928945, AA524093, AW592039, AW002375, T33717, AI097125, AA514373, AI424874, AA490412, R55849, R89670, AA502607, AI361469, R52206, R21271, W60204, BF940638, R45456, AA906578, R24724, H17344, W35351, ZA2802, AA757050, AA309188, D52329, AA479853, AA490314, AI929199, R45361, AA456776, AA806240, AA394201, R55770, W32915, AI380329, Z38945, AI003744, AA411018, R52109, AI471415, AA863370, W60203, AW866322, AL048656, BF921092, BF038804, AW238730, BF904194, BG180996, AW075305, BF343568, BF344691, N49165, BG117375, BE966011, BF822127, BF764538, BF969316, AL039086, BG104775, BE254907, BG104699, BF904258, BF798503, BE966787, BE393551, AW071417, AW162189, BF835240, BF885000, BE895765, BE886728, AI498067, BF854113, BE965121, AV759922, AI923989, AI307557, AI312428, BE620444, AI684013, BE895585, AI636619, BE047833, AV704051, BF812459, AW827289, BF339322, AI872914, BF792928, AW411235, AI345677, AL138406, AV721967, AI887775, AL036638, AI290153, AW167918, AI611728, BG110517, BE904911, BE910373, BE964876, BE966699, AA572758, BE543089, AL119836, BE536058, AI340519, BE963286, BE789764, AL040277, AL110306, AI307734, AI917963, AL036780, AI929108, AI468872, AA420722, AI698401, BF960601, AI537677, AW410972,
	464	847677	1 - 2048	15 - 2062	

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HPICD14	465	847876	1 - 1445	15 - 1459	AL529338, AL529229, BE880303, BF982161, BE873181, BE881088, BF034936, BG166948, BE891990, BE781051, BF943144, BG117335, BE568711, AW402835, AA805747, AA844707, N75645, AA134016, AA932210, AW262734, AL346736, AV690915, BF037465, AA262402, AA261864, AI696855, AW575150, BF829935, BF796536, AA205020, AA826922, AV737752, AA284255, AA994179, AI559298, AI076103, AV739985, H02173, BF695302, AA477385, AW304094, AA205058, AA292592, AA477137, R86076, H63956, C05740, H63680, AV755575, AI262469, BE711019, AI249269, AV683091, AA761240, AW407454, AA857134, N80944, AA455040, AA862800, AA205286, F11206, BE699222, N64798, F08871, AI273219, R92777, N48826, AI075199, AI243055, AA339693, N53858, N63843, AI199296, N73358, W16938, AA999830, AA569385, BG055723, AI278136, AI376291, BG056095, AI208333, AA199630, W49499, BF195200, AA011298, AI144136, AW664253, AI933207, BG057712, AI201901, AA970973, R50139, AI093140, N56867, AI991334, AI814598, AW445033, BG230563, AI870937, AA639679, BF115231, N91988, AW575436, AI039511, N45618, BE842488, BE842400, AW388173, AW388248, AW810606, AW388235, AW809861, AW810591, BE842401, AI351768, AW388188, AW051803, R57113, AW388250, AA917850, AW388238, AA401684, BE842202, AW387984, H25905, BE842150, N56015, BE842171, AW609158, BE842197, AA292824, AA634310, BE937206, AI366133, BE842347, AA554311, AA812536, AW388002, BE842471, AW810485, W42667, BE713154, AA534413, AA879125, AA131802, R50194, AA985657, AA748546, AA744485, AI265820, AW388185, AA857703, AK024682, AF151063, AC016572, AC012150, AC006485, AC008085, AL445242, AC008124, Z98304, AL391416, AC005226, AL117336, AL360174, AL117340, AC008685, AB045364, AP002534, AF119901, AL354751, AC035147, AL034400, AC005318, AC005411, AC008813, and AL022322.
HGJ21	466	848184	1 - 594	15 - 608	

HBGNW7 8	467	848214	1 - 966	15 - 980	
HSDZN36	468	848395	1 - 1451	15 - 1465	AW975846, BF038960, BG164740, BE8889792, AW977203, AI590719, BE544475, BF031694, AW130905, AW38800, AI246022, AI224526, AI741866, AA120785, AW084719, AI290610, BF955402, BE218170, AI333346, BF437535, AA398620, AI420570, BE326499, AI571005, AI273665, AW025836, W56091, AI559125, AA120784, BF700090, BE348867, AI220406, AI224528, BF223717, AV709156, AA625099, AW316523, AI377451, AI969120, AI417968, AW276374, AI417991, AW276362, AI190743, AA886409, AA625773, AA234448, AA765287, AA236585, AA417754, BF343377, AI285589, AV703351, AA678422, AA125907, AI015199, BE764876, AW337260, H86847, N75304, AI886263, AA249001, AI866198, BE927551, AA249049, H86789, AA393271, AW955593, BF826717, AI049631, and AC011297.
HFPCS09	469	848480	1 - 1129	15 - 1143	BF951763, W27832, AI157531, AA393929, R15334, BE829437, AA326249, R18065, W27473, AW904344, AW905845, R19862, BE829443, W26700, R59515, T30655, H30848, AW904362, R14187, BE702294, W25837, BF963603, AA338605, W27511, F11672, Z45706, AW896283, BF960672, W28843, AA364544, W26007, AA318087, AW897408, BF960156, BE699595, BF960075, R19866, AW897412, BF948494, H18892, I40028, AB032436, and U07609.
HAIBB95	470	848610	1 - 1169	15 - 1183	BE271723, AI655778, BF033546, AI363260, BE897788, AW977041, AI423546, AW955877, BF111722, BE748038, AI149829, AA721308, BE179758, AI290323, AA994157, BF964002, AW068209, AA479257, AW611773, AA288015, AW297655, AA368376, AI028554, BF094791, AA702220, AA313639, AW197120, AI651578, AI873070, AA578960, BF094858, AI424122, AI249969, AA479107, T61903, BF224009, AI242976, BG261238, and AF159423.
HHEFI08	471	848769	1 - 444	15 - 458	AI031296.
HE8OM63	472	848773	1 - 419	15 - 433	
HAIAG88	473	848785	1 - 936	15 - 950	BF691763, BE909311, AW979048, AA829001, AA837772, BF820928, AC008154, AB041549, AC018646, and AC009275.
HAJCL92	474	849547	1 - 2664	15 - 2678	AI132620, AU133120, AU124827, AU124196, AU124499, BE891195, BG055132, AW377159, BG035852, BE873140, BE855894, AA399095, BF664758, BE886084, AA404314, AV706415, BG028303, BG122689, BF185741, AI917328, BF939504, AW610353, AI357365, AA861290, AI911596, BE783702, AI768752, AA429300, AI636894, BE672397, BF849079, AA167019, AW961286, AI554305, BE784466, BE719707, W16697, AW610341, AI828381, AW956556, BE719680, AU148613, AA115100, AA398205, AI184626, AA641723, AW367645, BF439756, AW073332, AI564257, BE856232, AA314835, AI159892, AI122582, BE139633, AW070813, AW959690, BE833827, AA115099, AI422256, BF108530, AI161217, BE925989,



HHAMAI 5	475	849576	1 - 1033	15 - 1047	<p>BF507734, AI889342, AA233467, AI499289, AI538740, AI082143, AI189572, L44417, R54528, AI422759, BE247703, AI421963, AI635810, AW449654, AI538749, AA219365, AI985321, AA722420, AV727426, BE538734, BE833799, AW890831, AI625122, AW674917, AA313817, AA404714, H39753, AA166739, BF826550, AA628781, AV686460, AV654215, AW589745, AW069435, AW768923, AA219269, AI017129, BF334128, AA405565, AW589704, AI623192, BG031390, AI380235, AA233561, AW674274, AI538667, AA599745, AA374095, AI470537, H51923, AI765362, BE246752, AA425023, R82633, AA215927, H28413, AI290382, AI289799, AI266044, AA343941, AW401860, AW176750, AI913239, BF108576, H96363, AW968549, N30900, H24609, D56876, H21960, BE174886, AA304807, AA788662, R82677, AA937907, AI566982, BF512154, AA436777, AW968723, BF056381, BF693237, AA352051, R54431, BE242721, AA247944, H24573, AA405606, AI423681, BE084137, BF826728, AW370954, T61149, AW793345, AW674429, AA334300, AI623544, AW891654, AA938724, AA484963, BE696383, AA702682, AW793362, AW752956, AW393918, AA834399, AA090478, BF906823, AK022581, AK022607, AL122097, and AK023276.</p> <p>BE796979, BF739892, AW419313, BE393557, BF593166, BF197383, BE393339, BE515252, AW779993, AI627671, AI093595, BF590007, AA768858, BF224451, BE042563, AI453448, BE219001, AI934830, AW134610, AA452254, AI458186, AA009829, BG170017, AA937437, AW603066, AA009719, AV654326, AI292354, AV689602, BF590947, AA725609, N80738, AW445130, BE561826, AW960526, AW206210, N70714, AI498437, AI700814, AI739459, AA302470, AA641589, AI869066, BF203473, N48641, AA295253, AV649711, AV649710, AI474725, N99850, R29311, AA413393, BF476574, N74879, AI474981, AI962318, AA526518, BF221633, AA525191, BE464057, BE174617, T93208, AW955686, BE544479, AV703222, AV648263, AV726058, AV703593, AV652027, AV708723, AV729263, AV726520, AV727613, AV652617, AW949795, AV696106, AW951263, AV689111, AV728157, AV692345, AV708893, AV659536, AV706219, AW959837, AV707541, AV704637, AV726624, AV709604, AV708004, AV704955, AV652156, AV658332, AV701707, AV727799, AV705693, AV726784, AV708704, AV702427, AW952183, AW959848, AW020592, AV727929, AV725956, AW955613, AW952457, AW961037, AW965144, AW954113, AV727980, AW951273, AV656903, AV661704, AW953787, AV697196, AW960326, AV709580, AV709587, AW959910, AW953515, AV659389, AV655280, AV726605, AV727787, AV659294, AV701983, AV725745, AV686060, AV660608, AV686064, AV659322, AV726156, AV654908, AV656478, AV698545, AV709314, AV708381, AV660728, AV691080, AV652001, AV651955, AV727003, AV709935, AV727526, AV703169, AV728518, AV728924, AV725617, AV701496, AV696931, AV683272, AV699089, AV684075, AW951618, AV708834, AV690007, AV709660, AV654035,</p>
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HPJDE45	476	849610	1 - 1554	15 - 1568	AL523171, AV650116, BE154893, AV728032, BF195766, AF767606, AW847731, BE144974, BE144973, BE144972, AW847800, BF576595, R33273, AA017727, AA449273, AA568610, AA348127, AL523170, BE835374, BF527894, AV682357, AW818599, AW847863, BG253203, and AK000166.
HPMJG77	477	849645	1 - 2538	15 - 2552	AI659020, BE879073, AI763323, AI814295, BF978647, BF978509, AJ610721, BF692603, AV706038, AW780024, AA772328, BE865596, BF055300, BF031434, AJ418868, AI954627, BG166779, BF791313, BF691958, AW151963, AW772644, AI677849, AI635780, AW131776, AI889482, AI096856, AV753735, AI669811, AW084985, AW512814, BE999938, AW293217, AI492379, AW612101, AA649057, BE961191, AA833822, AI418419, AW022350, AA557342, AI669088, AW592498, AA010761, AI564095, AI635708, AI828780, AA770537, BE246113, AI934933, BE672363, BE869773, AW451170, BF590868, BF103964, AW182645, AW772415, AI367249, AW051966, BE222489, AI458195, AV755982, R77193, AI692590, N50802, AV708404, W17370, AW572602, AI244799, AA011122, AI362142, AA558981, BF941407, AI554093, BF431279, AW305163, AA988181, AA781160, AI244711, AW190545, AI192384, BF941819, AW973665, AA370739, N90141, AA768294, BG257427, AW169913, AI092121, AW242957, H87588, R57440, BF755922, AW962786, AI470461, AA287847, AA523705, H80066, BE892815, AI766135, AV651198, N79945, BF830818, AU125791, H87476, AA732852, AI784216, BG110503, AA209522, AA431068, AA287848, AI217818, AW243077, AI765919, AI280035, AA781161, AA748573, H38370, AW016055, BF739826, AI472571, AA649021, N55159, AW970439, AL118781, AI621341, AI147877, AI927233, AI401697, AI590043, AI539260, BF814528, AI499325, AI590020, AI126920, BE934593, AI560873, AI699823, AW104666, AI698391, AI310460, AI239701, AI800473, AA738219, AV682249, AA282824, AI370623, AJ475371, AW410259, AI800341, AI536601, AV681924, AL513901, AW129659, AW243752, AI797538, AW073858, BE393784, AW983832, AI473974, AI652664, AA633592, AI445611, AW169784, AW263722, AK000780, L14684, AK022724, AR082685, AK025435, AL050393, AK026462, AL137292, I89947, L04504, A77033, A77035,

HBCCG79	478	850225	1 - 1656	15 - 1670	<p>AF060555, AL050092, AL110223, AR038854, AL137650, AF232009, AK027173, AL080139, AB040710, AL137533, I32738, A52184, AL133623, AF085355, X76485, AF274863, and AJ003198.</p> <p>AL530816, AU123273, AW003164, BE748954, BG171523, BF795581, BF691478, BE68907, BE896766, BE748004, BE748435, BG249659, AA045270, BF184349, BG252885, BF541405, BE748684, AW965794, BF213334, AV742715, AI754721, AA045261, BF692026, BE866351, BF978795, BG254947, BF241372, AA155751, AI565953, BF103918, BE566964, BF210113, AA088741, AW190656, BF700657, BF675760, BF245336, AI937782, BF514328, BF213948, AA056487, BF382974, BF352490, AA100738, BE960757, AA709384, AA311618, N92256, AI561054, AI439164, AW512895, BG231819, AA814735, AA210779, BE542455, BF244465, AW589874, AI682758, BF030296, AA747843, W37157, AI630413, AA088742, BF760535, AA312081, AA056653, AA211907, AA249460, AI474592, H60997, AA311720, AA450319, BG025172, AA766193, BF214306, BF351872, H61568, AI206841, AI189682, AW105463, AW151761, AI298710, AA708760, AA904211, AI370470, AA311432, BF919714, AW502873, AI355246, AI791659, AA719433, AW962971, AA297776, AA573127, AI038304, F24745, AW500684, AI249688, AI565126, T47138, AI610737, AA405726, AA503298, AV720457, AW512528, AA358086, AI159046, AA593501, AI831172, AI590404, AA856817, H82636, AI499954, AA086318, AW275432, AV763026, AV763058, AW130188, AW662635, AA975894, AI370170, AA613966, AU155090, AI633386, AW672927, AI340941, AU157209, AA299589, AA666295, H29914, AA837597, BF447461, AA489797, AI280504, AI754567, AI459733, AA493226, AI569100, F30310, F23264, AW192599, AF085360, AF132971, AF161528, AK001158, AC020633, AL121963, AF158186, AC002310, AL022476, AL138756, AC007537, AC005701, AC004765, AC007766, AC006511, AL135749, AC004386, AC005158, AC010620, AF107885, AC011514, AL139100, AP000212, AP000134, Z68276, Z97181, AL022313, AF109907, AC002418, AC005531, AL109804, AC012085, AL078461, AC004223, AC004584, AL445263, AL163279, AC003963, AC005365, AL136172, AC006455, AC005324, AC009470, AL080317, AC003108, AL137798, AC006345, AC023490, AC005295, AP000030, AC003106, AC009004, AC005522, AC006597, AL009182, AC009000, AC007160, AP000252, AL132657, AL161420, AP000250, AL031587, AC020956, AC008685, AP001711, AC008132, AC018641, AC002094, AL121712, AC011495, AC0073898, AC010328, AL109923, AC004796, AC004854, AC087087, AL135924, AL008730, AC008055, AC002036, AC018720, AC022459, AC005038, AC009362, AC006483, AP000557, AB022785, AL354696, AL139095, AC004647, U78027, AC007298, AC012318, AJ277546, AF196972, AC005088,</p>
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HFIHQ53	479	850238	1 - 727	15 - 741	BF025694, BF794950, AL516199, AL515320, AL532397, BF699660, BG104156, BE383914, AW853030, AW839070, BE384100, AW814828, D26488, and AK000836.
HUVFU38	480	850252	1 - 2865	15 - 2879	AL528466, AL515937, AL532237, AL515936, AL525124, AL532236, AL528367, AL528434, AL515028, AL524995, BE250695, BG111806, AV721549, BE878048, BG259396, AV704379, BE561358, BE081006, BG179611, AA195932, BG254477, BE293120, AW957107, BE890558, AV704489, BG106045, BE868130, BG178706, BF986395, AW582566, BE388805, BE261883, BE276222, BE561069, BE562551, BF979840, BE514039, AW361920, AA126447, AI688244, BE513443, BF575980, BF897807, BF530689, AI299929, AA772339, BE675680, BF792461, BG249935, BE905864, AA480039, BE744995, BF308989, AI333993, AA602978, AI972665, AA780383, BE559738, AI084506, AA196096, AA625213, AA902390, AW069482, AW369988, AA418817, N99166, BF060744, AI198937, AA479634, AW327284, AW055168, AW511171, AD261876, W49832, BG037058, AW026236, AW964812, AI129281, AI668787, BF183828, BF219396, AI050728, BF750546, AW236223, AA025636, AA428220, AA176446, AI300107, AI040239, AI039488, BE313610, AI276088, AI275452, AI332679, AA603339, AW578583, AI739314, AA429340,

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HUDBK83	481	850353	1 - 3287	15 - 3301	<p>AL520804, BE560690, BE742062, BE790521, BE899323, BF972849, AL520805, BE744795, BE747425, AU119984, BE560076, BE249844, AU149583, AU134084, BF034450, BE871648, BE870117, BE408508, BF307279, BF340688, BE875025, BE513665, BE728386, BE269460, BG248501, BE885025, BF339399, BE382334, BG115941, BE889122, BE408936, BE305160, BE549253, BE793587, BE277699, BG254158, BE386997, BE397065, BE261676, BE742894, BE296693, BE278674, BF033321, BE304959, BE314372, BF212901, BE264807, BF314259, BF690356, BE379564, AW956831, BE253348, BE304548, BE735604, A1954969, BE727178, AW249929, AW246199, BE254233, BF340101, AW510920, A1740615, AW593941, A1656569, BE395368, BE305028, BE398019, BE540279, AW410660, BE256649, BE788963, AU160329, A1635946, AU157330, W95025, BF981929, AU148218, A1951125, AU147376, A1870259, AW955198, AU127925, AU155192, A1077544, AW028250, A1401718, AU154793, BE398128, A1885184, BE900748, AW873113, AW410659, AA069735, AU146185, AW025091, AW008245, A1817594, AU154676, A1016890, A1954501, A1499064, BF689409, AW381699, AU147710, AA644009, AA599687, A1825343, AW393349, W93340, AA588708, AA765638, A1084871, AW519173, AA687684, A1811921, AA477678, A1860840, W17119, AW514730, BE394701,</p>

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HDPSB01	482	850581	1 - 463	15 - 477	BF982188.
HKAPB61	483	850629	1 - 610	15 - 624	BF131978, AA304731, R67648, R71055, AW956573, AA812755, AA344247, A1906808, A1285921, AA917714, AA608997, BF208995, AK000122, and AC002550.
HMIEGF05	484	850930	1 - 819	15 - 833	BE255193, AW389851, BG010248, AW389780, BF984555, BE810495, AW389841, BE254704, BE292987, BF741165, BE408399, BE898624, BE254780, BE742465, A1520691, BE066337, A1658516, BF082448, BF851417, and D87071.
HPTVF17	485	850963	1 - 965	15 - 979	AA224259, T87253, BF923435, BE393764, AA968591, U73628, and AC002554.
HDLBF57	486	851303	1 - 791	15 - 805	AL516524, AL523530, AL522627, AL521047, BE250532, AL520378, BE2999300, BF314768, BE797074, BF203284, BE257240, BF305588, BF316892, BF312308, BE782304, BE740203, BF317471, BE312340, BG259043, BF304705, BE783998, BE294875, BE909807, BG256226, BE314446, BE261392, BE297500, BF675381, BE744361, BE744966, BE548635, BF033935, BE251256, BE887611, BG119882, AA456543, BE747714, BG248395, BE266756, BE793743, AA126176, BF515616, AL522626, BE792687, AL520377, AL516523, AL521046, AW577340, AA405598, BF037537, AA223646, AW799736, AF143676, AB023049, and AF000512.
HE8QT62	487	851311	1 - 1714	15 - 1728	AW665408, AW613505, BG030618, BE465796, A1739103, AW952903, AW450294, A1432411, AW295155, A1346458, AW104928, AW665365, AW771168, AW752101, AW614194, BF061040, A1040168, AA443231, BE936842, AA846199, AW050768, A1382105, AA969903, AA213661, AU156681, AA213714, AA680356, AW021666, H00349, A1247239, AA443193, R75629, H84011, BF337897, AA019205, T89550, A1192058, AA342622, BF906498, A1984950, AW016702, H84010, AA148657, BG256716, C02452, A1651149, AW900852, AW504163, T89462, R75728, BF094383, AW900055, AW177473, AW177492, A1350666, AA161357, A1695407, AF246234, R10139, A1245907, BE787062, BG121187, AL526477, BF965645, AW900054, R10546,



HE9FI33	488	851342	1 - 548	15 - 562	and AK001888.
HOUBJ40	489	851343	1 - 722	15 - 736	AV656281, R01832, AV651324, AV651869, and AV651287.
					AI819381, AI310001, AI765179, AW469513, AA430317, AA916310, AA165202, AA642449, AI026968, AW771605, BE502623, AI420843, AW079421, AI934173, AW015472, AA905985, AI363754, N64513, and AI352030.
HHEVC06	490	851355	1 - 1128	15 - 1142	R94248, AA886480, AW963444, N77480, AW505253, AA825827, AV760388, AF111167, AC003950, AI139286, AC009948, AC004787, AI162424, Z99716, AI163210, AC005821, AF131216, AC002375, Z99755, AP001711, AC008753, AC005529, AC008745, AI010598, AI121897, AC005971, AC002091, AI158141, AC025593, AC005840, AF168787, AI157938, Z86090, AC007216, AC004962, U95742, AI049636, AC009314, AI121929, AI021878, and AP001712.
HE8FS36	491	851478	1 - 522	15 - 536	AA081924, AI826032, and AW139546.
HE2SS47	492	851581	1 - 1234	15 - 1248	
HTELD06	493	851722	1 - 908	15 - 922	BE144299, AW963157, AW797329, AW797435, AW797324, BF208787, AI902754, and AI902734.
HDPJH06	494	851787	1 - 2211	15 - 2225	AUI23917, AW965127, AI268323, BE537090, BG165313, AW192928, AW276212, BE567670, AW235662, BE813321, AU136774, BE701024, BF435975, BF061774, AW772181, AI418496, AI206440, AI807458, BE047930, AI765697, AI571531, AI963307, AA284379, BE701023, AA029521, N46812, AI800943, AA954945, BF752658, AI698158, AA582925, AA029456, BF130638, N40954, N45167, BF111150, AA868735, AW377314, AA847201, BG059073, AI753676, N39320, N50565, AA910022, BE873987, AW770649, AW104970, AW367831, BF132245, AW367857, AA452831, W31257, AA292701, N50509, BG055311, AA452971, AW367869, AI651989, BE007388, BE007387, BE007389, AA995702, H48376, BE007394, AW367835, BE007375, AA188623, BE007385, N91822, BE007417, BE007383, BE007386, AW022443, H87038, AW238781, F09098, BF752965, AA832105, AW368954, AW368943, AA344658, AI500038, AI635645, AI382824, AI924708, BF327766, H87039, H48286, T67638, D25737, AI565186, AA344782, F04983, AA095952, AV749671, AA846992, F11435, AW877247, AW369597, BE907218, AW051197, BE007418, AI702073, BG249582, AI473536, BF525883, AI079963, AW983832, BG114012, AI281757, AI923370, AI241923, AI079960, AI538564, AI570807, BE047852, AI915291, AI624293, AI433157, BE392121, BF812960, AW163834, AA908294, AI355426, AI348777, AI037030, BF814453, AI251221, BF812938, AI922550, BF970652, AI678357, AI046618, BF812961, AI884318, BE826058, BE541267, BG166654, AI633125, AW026882, BF812936, AI046466, AW152182, AI039086, AI950664, AV741327, BF811804, AV715762, AV682468, AI698391, BG058150, AI868931, AI801325, AI500714, AV682326, BG029667, AI889189, AW051088, BE543089, BE544111, AI335208, BG113299, AI923989,

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HDTKS69	495	851859	1 - 1303	15 - 1317	AW976887, AW241409, AW403567, AW964903, AW470531, AW291973, AA761563, AW296680, BE855893, BE858613, AI476419, BF115895, AI298990, AI298992, AI924755, AI937015, AI307369, AI694490, AW297292, BF886279, BF377965, BF886270, BF445139, BE139195, BF888690, BF886264, AW631316, BF888646, BF886278, AV711730, BF377959, AI598112, BF377985, AI336892, BE669511, AW197707, BF886262, BF884957, BF888699, BF888645, BF886269, BF377962, BF377988, AI681415, BF377967, AI222929, BF886266, BF886274, BF377977, BF377955, BF886281, AV752210, AV752844, AA989234, AA349603, BF888692, Z46051, AA452428, AI681890, BF888701, BF438158, BE465280, AA452250, BF377956, BF888693, D61164, AA962297, BF377991, BF240861, T33053, H12108, AL536728, R41947, AA325625, BF377964, BF888703, AI468118, AI302325, AA096343, BF884959, Z41663, BF377958, and AL122044.
HE6CH89	496	852568	1 - 2419	15 - 2433	AL133779, AW961788, BF726698, W63676, BE046412, W63789, AA659693, BF114614, BE646183, W60959, AI951970, W94209, AW044233, BF668056, AW663548, W04957, AI139947, AA514302, BF084925, T91396, AA846232, H27231, AA789002, AA581966, AW129678, AA347970, H28581, N20018, AA249370, AA449282, AW188870, AA809643, AA295134, H75715, AA449227, BE841554, BF378732, T90114, BE841633, T84625, AA610150, BE710736, AI040666, AI279919, BF130410, AA526037, H75644, AI925869, BF687723, BE153177, AI925860, BE706664, BE706539, AI690750, AW362955, AI299663, BG035577, H61476, H59488, AA633424, AI299662, AA602906, AA347969, BF839249, and AA622801.
HDPGS20	497	852676	1 - 820	15 - 834	BE560117, BE545259, BE296330, BE728430, BG037034, BE783399, BE397114, BE267957, BE410734, BE270054, BE729999, BF529231, and AI003007.
HWBBZ12	498	852760	1 - 4195	15 - 4209	AL521810, AL521731, BE874635, AI307239, AW303301, AW951149, BF692324, BE645157, AV719105, AW965997, BE958390, AW511198, AA151800, N62802, AA280093, AL521809, AA769586, AI016311, AA190568, AI128102, AW592389, AA286941, BE467469, AI690591, AI417149, N93916, N35258, AI656458, AW819899, AA114171, N31408, AW057592, BE503040, BF217243, AI962336, AI652288, AI653042, AW501088, AW300374, AI798157, N35259, AL521730, H05662, BF511775, AI209166,

					AA234870, AA134534, AI469529, BE569011, AA114207, AI090001, AI090000, AA988512, AW573080, AU152966, AA815131, AA458847, AA149585, H16290, R52898, AI336807, BF366184, N25776, R67271, H05663, AA740637, BE958323, AA653507, AI656700, AI538210, N44914, AW176403, AA193681, AE27153, BE463813, AI699942, AA280024, AA334073, N40400, R16037, R16341, AA134533, AA737546, AI688328, BF366186, AA806288, AA767138, AA978182, R37746, N35751, AI653910, AA464426, AA312984, AA282508, R52899, AV694160, BE221828, N30139, N48344, N49120, AW235411, AA194072, AI240620, N62171, R41417, AW444980, AA886122, AA887154, AA631265, R13914, AA379725, BF370474, AA346842, N44257, BF377929, BF377889, BF032247, AW795977, AI908681, AA732026, AI792109, AI792420, AA282606, AI049735, AA665968, AI821765, AA715324, AI733697, BF110370, AA247960, AA319253, AL138399, AA713477, AA713787, AK023151, and T66623.
HDPBI36	499	852845	1 - 598	15 - 612	BE140560, BG025607, BF038888, BG035065, BF510346, AU155348, AU155147, AW953423, W60080, BF700950, AA865478, N90291, BF349120, BE694433, AW450652, BE180648, AA993634, AW449519, AI806539, BE710391, AA351618, AW449522, BF874964, AI827626, AA904788, AK023383, and AL117600.
HMAEP64	500	852960	1 - 1135	15 - 1149	BG034851, BF439942, AI141684, BG008949, AA242853, BE677186, AI281834, BF433831, N50984, AA826047, AW014432, AA977801, AW770255, AA984041, T64272, AA994205, AA252172, AI361098, T64144, AW084330, AI280735, AA931748, BE146421, AW071613, R09320, AI990634, R09211, AA448980, AW388104, AI147841, AI198101, AW517751, AW238793, BF969846, AI627898, AU156992, AW074546, AW072130, AI394689, AI276023, AI457707, AI953242, AI539262, BE907440, BF984530, AI886594, AA761557, AI636788, AI274769, AI933785, AI613471, AW079334, AI539771, AW082532, BG178911, AI568132, AI624304, AL040011, AI627909, BG028962, BF792115, AI934147, D44958, AA947158, AI805688, AI432237, AI696626, BF828567, AI499960, AI554218, AW084097, AI365256, AI446405, AW264688, AI355779, AL036548, AI343038, AI272116, AI336506, AI254251, AW303238, AI889133, BE875407, BF054886, AW268290, AI963172, AW085786, AI249877, BF055737, AI537617, AW263569, AW118414, AI873638, AA150147, AI888621, AI357599, AI244380, AI625926, BE877316, BE874060, AW411412, BF904180, AI537837, AI554343, AI677983, AI471282, AI680498, AL043084, BF750875, AW410972, AI572717, AI620093, AV743631, AI539632, AW409931, BF913615, AW083804, AV709604, AI824557, AI627621, BE393551, BE964767, BF817746, AI473451, BF915316, BE613727, AI932949, AI580290, AI309306, AW104141, AW149876, AI539153, AI433611, BE783150, AW089275, AI677797, AI865931, BF925370, AW193841, AI678446, AA830821, AI245304, AI635367, N74355, AI418128, AL046463, BF924884, AI499986, AW131954, AW248417, AI859644, AI499463,

AI866573, AA835966, AI802554, BF814761, AA806719, AW168693, AI624529, AI859464, AW131952, AW301381, AI567238, AW089327, AI633306, AI475430, AI521005, AI648502, AA493923, AI568138, AI537190, BF909758, AW129993, AV733682, AI758512, AV756638, AI824360, AW022494, AW265004, AI674912, AI801561, AW073898, AI802826, AI349017, AI037521, AW151847, BE965169, AI611743, AW081866, BF811802, AV703599, AI537075, AI308035, AW268060, AI240135, AW302973, AI800138, BE964981, BF339322, BG107564, AI335411, AI866608, BE964700, AI432229, AI636619, AI565172, BG179295, BE974031, AI918397, BE964645, AI537677, BF816042, AW029216, AW118477, BF868927, AW172723, AW168709, AI862880, AI147686, AI318254, AI741926, BF814449, AI571699, AW500379, AI886055, AI472536, AW082623, AW089006, AI446124, AW025279, BG105342, AI358725, AB020598, AC004126, AK023577, AK000546, AK000450, E03348, E03349, AB033881, AI110171, I48978, AK000247, I05032, AF285167, AF215669, S7771, A18777, AK024747, U96683, AF203861, AI133072, AF188698, AK027113, AC023880, E02253, U67958, AL049382, AK027182, AL023657, AK024570, AL080060, AF067790, AI122111, AK027193, Z97214, A08910, AI137463, A08909, AL080159, AB034701, I89947, A08908, AK027204, AF185576, AL389935, AR038854, AK000718, AF012536, AK026533, A65340, I26207, AB049900, AF207750, A08913, U75370, A21103, AR000496, U39656, A08912, A08911, I89931, AB047248, AL389978, AI133565, AF116602, U42031, I89934, AR087170, A08907, AK000137, L30117, AJ301634, AR059558, S76508, AL031346, AC009484, AL389939, AF113689, X80340, AL359600, AL137711, AF274348, AF274347, AL137476, Y08769, AF155148, AK026408, AF162270, A65341, AB041801, AI162003, AL359583, AF000301, AL137574, AK026627, AK025015, U00686, AF040751, AR070212, AK027200, AB047869, AF090886, AF113676, AL133014, AL353625, AF159141, AL133645, AK027164, AK025541, AF151109, AB048995, AL137641, AK026556, AK026462, AR016469, AF003737, AF090934, X79812, AB050411, AB050534, AB051158, AF217987, AK026947, AF047716, AK000753, S69510, AF119856, AL137558, X66975, X93495, D55641, I22272, AF111112, D83989, AL359941, AF126247, AB048913, AK026642, AB048919, AK000636, AL122098, AF106697, A08916, A93350, AF217982, AF218023, AK025708, AX010492, AF155827, AF139986, AL096751, AF104032, I48979, A92311, AK026464, Y16258, Y16257, E02756, Y16256, AF116646, Y11587, AF217966, AL389983, AL049460, AK026452, AK025524, AL117440, AL122118, AF081197, AF081195, I68732, AK024538, AF271350, AL050015, AF119875, AJ299431, AK026518, AK026045, AF225424, AF130100, AL353957, AF177336, AK026885, AF176651, AF120268, AF130092, AL157479, AF116649, AB047631, A08915, AL137273, U80742, AL049452, AK026551, AF208850, AK000647, X83508, E15569, I89944, AF113013,				
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HTYSK68	501	852980	1 - 565	15 - 579	W76206, BE892371, AA045430, BG165714, BE067761, BE067599, AW604257, AW604258, AW608062, BG027832, BF082486, BE410601, BE621092, BF746863, F00707, AW183659, BE765320, AI005256, AW139829, AA526313, BE349541, AW972653, AU123291, AI769723, AW195597, BF921966, AI908211, AV709436, AV751309, A62731, and AK024219.
HDAAD50	502	852987	1 - 2278	15 - 2292	BF979868, AU139403, AI908467, BE889829, AW753110, AA534879, AI123433, BE566224, AI692197, BE542928, AW753090, AA767381, BE208045, BF794425, BF436983, BG164095, AW511053, AW969335, AI913281, AW955434, AI522156, AI670900, AV724704, BF000574, AW753089, BE501680, BF105238, AW275367, AI459401, N20936, AI623733, AI627242, AI371861, AU157976, N24391, AU149797, AA831674, AA835896, AA417729, AI356961, AI453036, N27804, AI078123, AI376171, AA480585, BE465586, AI674322, BF670952, AU157539, BE087582, AI817344, AI867897, H99142, BE889447, BF063321, AA825911, AA604689, AA504353, AI829860, AI638163, R16151, AI093185, AA602146, AW753088, AI025691, BF438954, AA173422, BF678657, H23392, AW183115, AI866985, N94845, AA782422, AA173512, N63526, AA393750, AA970899, N42975, AI202443, AI623734, H23281, W72180, AA779566, R15410, AA769362, R19830, R76511, AW235242, R44725, R45927, R76512, AA279923, AA361478, AA628869, AL040001, AI468946, AW769710, BF107251, Z21325, AW299412, AW119233, C00448, AI434293, AA809980, AF191838, AR016417, AF174536, AK002192, AF191839, and AF145705.
HNTNC03	503	853174	1 - 795	15 - 809	AI131253, BE067780, AW305082, AW237044, AA830100, AA421070, AA025511, AW993523, AI274853, N32443, R70354, AI685853, AW949793, AA420990, AW949794, N23738, R70353, N64804, AA115795, AA758003, AI393511, AI400593, AI421934, AI022207, AI419316, AI360871, AW661961, AW474531, AI094853, AI350949, AI668844, AW591521, AA398677, AI204113, AI083523, AW474490, AA625661, AA478577, AI147474, AW009344, AI264028, AI287600, AI745227, AA427956, AI361058, AW055024, AA639992, BF939863, AA677093, N34840, AA678281, AI086648, AI572140, N51463, AA056256, AA535085, AA627509, H79313, BG114657, N64760, AA393323, BF515805, BE857443, C01602, H10460, BF197896, H28024, R78391, AA570617, BF197888, R43355, AL537721, AW020489, AV712485, AA492446,

					AA715624, AA450037, AA371629, BG166418, AI086047, N90080, BF242820, R23200, AI659542, AA903186, R28390, Z38820, BE179664, BE179593, AI474240, AI471187, R39562, BF977226, N54391, N34906, AI990226, AA370525, AW750319, AA319158, AA503110, AA025818, AU131398, N76354, BF983209, R78390, N76168, D26067, and AC007246.
HCFNG65	504	853186	1 - 2669	15 - 2683	AL520019, AW965074, BF966803, BE907988, AU136803, AA292285, AW242897, AA481605, AW190410, AU154591, BF195973, AI636493, AU150382, BF334255, AA399187, AA490303, AI432407, AW003248, AW058097, AW613051, AL042324, AA490395, AI669436, AI057424, AU156517, AA648369, AA609423, AW779893, AI057419, AI823433, AA055975, AI754362, AW615173, W00815, AA740999, AI619960, AA056003, AW002199, BF756564, AW235192, AA832288, AA657864, AI368977, AI208560, BG030572, AI954427, AI184592, BF676092, AI888413, F06438, AA251676, AI470785, R53637, AI434370, H25490, R54220, AW452928, BE243536, N57953, R94036, H74165, BF963694, H90376, H48301, H06080, AA732759, AA824570, AA720892, AA251677, N69262, H60339, Z25257, R39030, AI188350, F04691, H25445, H96158, Z28877, R99995, AA363446, Z45827, AW804047, AW955093, AA353208, R14249, R51824, BG250874, AA344147, H63558, T80308, R24988, R93991, H91285, AA285259, AA649237, AA434029, BG166619, AA343843, AA702776, AA481540, T03777, AW013849, AA626078, AU136143, BF329847, AL096748, AK001882, and AK001721.
HLMMMI85	505	853213	1 - 795	15 - 809	BE900784, BF794218, BF791795, AI885381, BF037238, BE901504, BE873362, BG248640, BE398146, AI568350, BF061125, BE263482, AI568355, AI760257, AW628438, AI292133, AA535203, AW249219, AI168147, AA243345, AI291016, AA977229, AA992604, AI003960, AA774418, AI682408, AI351526, AI857534, AA996147, AI628719, AA158984, AI720303, AI347727, AW248797, AI273824, AI620238, AA614444, AA243544, AI150104, AA872243, AW967798, AA903492, AA158624, AA649230, AI291548, BG059113, AI492665, AA025685, AA470812, AV741835, AI826219, AA025567, BF446078, BF435031, AA745181, BF445492, AI090436, R58607, T24632, BF057482, AI719645, AW952457, AW961037, AW945168, AW965144, AV658835, AW961463, AV651436, AV725055, AW020592, AV729439, AV708653, AW949453, AW951273, AV703042, AV727839, AV722222, AV721957, AV684417, AV708075, AV706987, AV693527, AV650024, AV707727, AV726605, AV703263, AV706775, AV707889, AV648430, AV727980, AV704934, AV705323, AI525653, AW022086, AW960579, AW953868, AW950438, AV725580, AV753074, AW966420, AI886206, AW021777, AW949477, AI557808, AW954384, AV704350, AW023863, AW952414, AW020328, AW953394, AW021178, AW963879, AW961253, AW963028, AW950220, AV688667, AW022826, AW963490, AW958647, AV654896,

					<p>AW953930, AW950716, AV728592, AV685966, AV645906, AV709869, AW022308, AV683272, AV683415, AW950267, AV708834, AW963915, AV686346, AV690007, AW953657, AV655425, AW020634, AV728806, AV703222, AW950223, AV703168, AW954031, AV705384, AV727512, AW949433, AW952439, AV728670, AW964095, AV727990, AV727776, AW950247, AW950035, AV701580, AV705632, AV698087, AV706721, AV708004, AV706659, AV702117, AV702932, AV707753, AV702026, AV705341, AV704269, AV652443, AV707024, AV727819, AV729259, AV706744, AV701620, AV707296, AV704824, AV702994, AV726738, AV707767, AV706915, AV704182, AV705223, AV697638, AV653845, AV726229, AV729462, AV703472, AF161407, AC005757, AC005779, and AF218031.</p>
HBGMZ39	506	853966	1 - 576	15 - 590	<p>AI820661, AA989356, AI791493, AW972538, AI791282, AI732537, AI792053, AW207804, R72427, R22360, AA505927, R22019, R72474, and AC008537.</p>
HHIEIA70	507	854202	1 - 1684	15 - 1698	<p>AU123924, AV712459, AV716178, AU133463, BG109543, BG254939, BE874698, BE881193, BG032497, AV713778, AV715623, BF699449, BG032394, BG256561, BF691904, BF765887, BF571543, BF211444, BE960612, BF789915, BE883523, BF701507, BE565565, BE566925, AV716400, BE568689, BF244455, BG180086, AA928757, BF244610, BE567236, AU154863, BE966666, BF197225, BF701085, AI041056, BF242863, BG119951, AA777023, AW605844, BF668812, AU155740, BE710106, BE170706, AI250804, AI133274, AW192753, AU157424, AI24047, AI339978, BF241568, AA076059, AU156139, BE780213, AU155997, AW297486, AI803258, AV758208, N95058, AI161155, AW236323, AW073491, BF241036, AA639357, AI817155, BF448506, AI309269, BE621573, AI061069, AW769318, BF240888, N91833, N92272, W31126, AA566096, AV722948, AW795229, AI159771, BF241569, BF572630, N57457, AA173423, R71558, R15750, AI350782, R81297, AW062991, T77623, AU157135, AA160358, T92895, BF512692, AW798549, AA612885, AA683182, BF213137, BF734616, AA649626, AA434223, AI192011, BF130714, AA864518, AW169366, BF795618, BE620006, BF241417, BE261280, BE621158, AA991504, BE905799, R69368, AI471217, AV750427, BF924747, N51436, AA173513, BE622550, BE965818, AI985930, BE397078, AW798551, AI280636, AA304806, D59419, D59418, BF239224, AI024052, AI925359, BG256626, D63079, BG105905, AA092898, BF247817, N29513, BE278555, AA812364, BE542633, AI886982, BE834067, R69369, AW503504, BE870476, R71504, AI471893, BE302362, T92985, W19525, W24451, AA283287, BF900198, BE872795, AA129670, BE931171, BG116466, BF570724, R81190, AI783968, BF933830, BE090319, BE150855, AA483073, AW969701, BF665373, AW627449, H80761, AA076155, BE163597, BF352779, AA090537, BE619343, H80760, H79112, BF691268, AU138019, AX011687, AK001226, AK002059, AF208851, and AC002044.</p>



HNTNA78	508	854267	1 - 1568	15 - 1582	AI377951, AL521476, BF571396, BF690972, BG168844, BF576614, BG168927, AA478899, BF692249, AI970420, BF838384, AA478780, AI522149, BF571271, AA758425, N28525, AW956237, AI954716, AW197154, BF541232, BF838382, BF687607, AI631753, AI829079, AI765476, H99846, R56161, AW274419, AI371713, AI951909, AW769338, BF516230, BF680632, HI9109, AI932682, AI138219, AI925973, AI956119, AI301748, AI378559, AI080154, AI755080, BF000829, H05933, AA031313, AA736498, AW090099, AA852791, AA852790, T07303, AA928061, R55988, AI699043, AI087918, AI468315, AI469137, R56048, AW297359, AW749818, AA248855, AW517996, Z38380, BE938071, BF091711, AI760228, R55989, R57425, AC005082, and AF218026.
HOVAN91	509	854277	1 - 1310	15 - 1324	BE392523, BF341045, BF338150, BE747964, BF526954, AA293895, BE393803, N78405, BF345041, Z43548, R15203, F11332, F11336, AA324381, AI457481, AI458684, AL519858, BF341518, AL519859, AU152841, AI291292, AI458990, AW139401, BF934189, AA928861, AW139402, and AK001610.
HL YER32	510	854463	1 - 940	15 - 954	AA029331, AW664067, BE503813, AI186667, BF432974, BE503819, AI690124, BF064018, AW300343, AW813946, AI829341, AI802185, AI797180, AI700514, AA807670, BE466953, AI361710, AW975528, AA962421, BF925974, AA972769, AA834591, AI631229, AA931661, AW664640, BE041581, Z28658, Z24936, AW963973, AA077292, AI186729, T87682, T87683, AW885786, AA029330, AW885825, AA169324, BF332264, AA225538, AB032973, and AC004918.
HFPEL47	511	854659	1 - 719	15 - 733	BE277823, AF284435, AF181284, AI243874, and AL031575.
HTPU41	512	854779	1 - 2576	15 - 2590	AL533804, AU138032, AL533803, AV717452, AI741654, AW952397, BF309916, BG114820, AA476815, BF112198, BG036318, BE969641, BE302254, AA886870, BE390586, BE150546, BE327418, AW965860, AV725911, BE150425, AW770112, BF577149, BE895478, AW748782, AV729676, AI620282, AA282484, AA604615, AI199277, BE018684, AI937434, BE044645, BE439716, AV717152, AW606003, BF000782, BE391373, AI333984, AA653690, AI382103, AI123740, AU157432, AI768399, AA934911, W23609, AI744082, AI289871, BE327410, AA418277, AI797540, AI367419, AI367400, BE939455, BF678360, AI580127, BF223908, AA136349, BE939458, AA885898, AA305525, AI285587, AA235117, AI800539, AA125938, AA128334, BE939482, BE939480, BE090130, AA652315, AA961059, AA278483, BF735246, BF735076, BF735708, R81196, AW294564, BF734915, AA974222, AA707588, BF735816, H86503, W69866, AA707611, AV655281, BF735665, AI480419, BF735400, BF734911, AI452703, BE465470, BF735409, W69760, AW664874, BF735815, BF735169, H06098, BE765065, BF735152, AA869002, AI583185, AA487915, AA136262, M85357, H97382, BE764944, AA456645, BF735655, H97460, BF735393, BF735492, D79791, BF674143, BF734950, AA488030, AW372887, AA127061, BE764945, H05805,

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HNTNC49	513	855013	1 - 1287	15 - 1301		BE798823, BG034154, BE409853, BG238958, BE535519, BE869600, BG034115, BF943604, AL535475, BE159229, BG248396, AW249265, BF878999, BF348332, BG258481, AW958840, AA312273, AA181796, BF803663, BF994234, BF973327, AL517246, BF346353, AA357585, BF874508, BE536309, BF348676, BG180415, BE613919, BF685495, AU125754, AL522846, BE868901, BF342484, AA377891, AW964034, BE159180, BE514241, BF762748, BF034118, BF896264, BE797287, BF830251, AA779390, BF920086, BF763793, AF099100, AK022719, and AL133589.
HLTCO94	514	855239	1 - 600	15 - 614		AL536841, BE735678, BE618087, BE737509, BE900924, AA481191, BE252257, BG165549, BE871566, BE868205, AA326771, AW239445, BE535298, AW603822, AW841966, AW603835, AA249452, BF317226, W40382, BE539334, BF026164, BE908485, AW157388, AA074385, AW157140, AA076522, W40381, AB041581, and AC010000.
HBIMT77	515	855274	1 - 729	15 - 743		BE407428, BE729546, BE246285, BE245964, BE244779, and AV723921.
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HFADF33	517	855433	1 - 624	15 - 638		AW964861, AI199113, T03555, AL134750, AW964857, BF941466, T33390, AW071846, AI372071, AI000085, AI341994, AI290858, H20140, AA490324, AA831108, AA761080, AA831270, T15766, AI028648, T15377, AI768928, AA504496, AA436241, AA831107, AW006092, AA810105, T33661, AI937561, AA909438, H45997, AA961978, R59510, T17110, H51407, H16747, T33279, AA903891, H44071, AW418599, AA490428, H40313, F02637, H21621, H82614, H11585, AA719838, R39306, AI885029, AA350201, AA720515, R41852, BF109022, AI809976, H09947, AI694671, T16218, T15842, R38929, F04745, R40798, R46843, AI971591, AA831269, R43111, R44115, AI206924, R44343, R46040, H40036, AA765359, R44764, R43227, AI202064, AI422537, T15867, R55715, R48930, R43364, AA761663, R37457, AV751274, BF947642, AA448314, AA447622,

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HTTDM15	520	856108	1 - 812	15 - 826	BF314540, AU125474, BE734208, BE746984, BF575571, BE883532, H66950, BE092409, AW190087, AW896216, A1910194, AA079565, BE699057, BE186054, BE876022, AB007866, and AL109823.
HADCY76	521	856212	1 - 1771	15 - 1785	W94262, A1057055, W78912, BF574085, and R12644.
HDPXW75	522	856251	1 - 536	15 - 550	N46466, BG058736, A137376, AA522544, W86648, A1279721, BF222867, A1341807, A1651516, W86523, A1245138, A1262580, and AL354889.
HMCDC50	523	856301	1 - 625	15 - 639	AW340329, AW977501, BF679228, AA628140, AA867981, AA748304, AW366881, and AB014574.
HMADZ55	524	856326	1 - 729	15 - 743	AL523642, AL529465, AU137690, BE069366, AW838306, AW177706, BE253683, and AK002022.
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HLQGX48	527	856704	1 - 1466	15 - 1480	AI912275, AI523814, N21278, AA747306, AA814477, AW117338, BF507448, AA826112, AU145117, AI968842, AI458612, N31213, BE675599, AI680646, AI702188, AW594235, BE552090, AI350311, AA481615, AA255889, AA291310, AW978229, BF223338, AA688178, AW204443, AW500827, AA805991, AI701746, AA210742, AA813950, AW499763, AF147767, BF088418, AI557751, AI254609, AV718692, C14407, TI1417, C14227, AA737027, D81111, D80064, D59503, AW204856, AW966330, D58246, D80258, D58101, C06015, AW949643, D80166, AW973445, AV719188, D80014, AA810766, AA514184, C14331, AV646970, AW973541, AV718707, AA809122, C14344, AW975618, D80168, AW964468, C14298, AW966043, AV702035, AV740249, AW966531, F13647, AV718908, AW949642, AW699550, AW962245, D80248, AW966032, AV724520, AW960532, AI355686, AW959582, AI557774, AV720791, AW966075, AW966065, D80251, AV718489, AW949631, AW973473, AW973326, D59627, AW966386, AV719557, AW966534, AW960553, AV699479, AV700889, AV699746, AV720729, AW960483, AV701004, AV699715, AW966332, C14389, AW966399, AW960473, AW966368, AW965175, AV700357, D80949, AW959469, AW973334, AW966343, AV719913, D52291, AV727414, AV699480, AW959202, D51079, AA287859, D59695, AW352117, AV720878, AI277234, AW962395, C15076, AW962082, AV719391, AA287860, AV694084, D80022, D80195, AV720291, C03092, AW966385, AV738340, D80391, D57483, AV720203, D51759, D59787, AW973447, AV718770, AW966398, AV692290, D51022, D80157, AW956434, AW964488, AW949633, AV720533, D80439, D80268, AW966029, AV722801, AW966053, AW960465, D81026, D80043, D58283, BF349354, D59619, D80210, AW966333, D80240, AW966389, AW966059, AA504591, AV719945, D80045, AW978634, D50995, AW978642, AW973474, AW950578, AC007381, AJ404611, AK001035, AX047063, AX033851, AR016808, A84916, A82595, A62298, AR070327, A62300, AR087649, A30438, A45456, AR092424, AR008277, AR008281, AB028859, AJ132110, AR008278, AR018138, AX047064, AX027925, AR060385, AF058696, X64588, I14842, AR054175,

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H2CBH17	528	856745	1 - 2400	15 - 2414	AL55612, AL528352, AL529078, BF984476, BG031674, BG164923, A1816816, AI739004, BE673438, BE887500, BF530680, BG166586, Z78323, BG110470, AI632786, BG169003, BE614564, BF341033, BF593083, AV713551, BE175655, AI478790, BE788863, BG034070, AI921884, BF576981, BF031364, AA046908, AW952425, BE884923, BE535946, AI700235, BF508929, BG106575, AW581575, AA628768, AI800049, BF132189, BF063645, BE465748, BE618157, AA877858, BE618737, BE536612, BE883703, AW386704, AA928423, AA190629, BE540168, AI207510, AI375581, BE466078, BE773664, AA948368, AI185073, BF035981, BE536026, AI860126, AI815682, AI191336, AA534765, BE175777, AA476488, AA046419, BE773939, AW022072, AA282062, BE696484, N39225, AA041386, AA306627, T65177, AV706244, AI779983, AI720921, T65110, BF213807, AI143153, AA534439, AW404247, R60095, AW235882, AW023142, AA970486, T19337, BF351443, AA449159, AA639879, R60033, BE773649, Z43474, BE696481, T34427, F11834, AW952273, AA946986, BE836524, BE773632, BE168435, H72634, AA307487, AW665659, T26967, AV762970, Z42711, BF858561, BF858592, BF858562, AW407068, BF858577, BF858590, AV689558, AI984207, AI678009, AI744784, N55730, Z44175, BE827450, F11018, AI689373, BE716327, AA328209, AI984218, AA354757, F08270, H72635, BE041498, Z39551, T30561, BF031778, AI589953, AI002843, BF373506, AW262881, AA828237, F02192, AI351242, AA191158, AA102729, T34536, AA324937, AI143361, AA551155, AW961370, BE297894, T32468, BF857134, AA041426, AV660746, AI090947, T32541, AA102728, AI400907, AV661503, F04498, N55981, BG153054, AW386701, AW176735, AW176736, AA287311, AI652718, AW579838, AI202086, BF577106, BE773607, AI202522, AI031820, BE963167, BG110249, BE612549, AV699211, AV708834, BF342377, and AK000759.
HLQEF25	529	856748	1 - 1041	15 - 1055	BF695330, BF577065, BF694710, BF693790, BF790324, BF575003, AA948096, AI810387, AV719315, AA182396, AA182918, AA182923, AV720180, AI190465, AA479148, AA993691, AV646291, AI580838, AA176443, AI084581, AA178889, AV682627, AA181509, F34953, H59400, Z25287, Z25389, H60056, AA479147, H54086, T98798, AA181502, Z28893, AI701328, T99107, F00368, F26701, AA181515, F35827, AI243087, F00348, BF671671, BF826947, and AV659719.

HTOHA37	530	856923	1 - 1082	15 - 1096	AL517490, AL530029, BF980012, BF968398, BE395251, BF529065, BF688249, AW961334, BF689158, BE869082, AA436974, AW301595, BF433050, BF433932, BF446695, AL517491, A1627769, BE300486, A1148986, AW295167, BE673725, BF244755, A1095891, A1338889, AL528568, AA228704, AW300645, AA938998, BE798985, AW514097, AL527696, AW290959, A1584103, W51788, AA631562, BE535497, T30453, AA593364, AA593259, D20778, AL530030, AW148377, AL522339, BE795128, T19553, AW998155, BE379035, AW998152, A1371361, BE274347, BE158361, BF315941, AA228703, BE174179, T19552, BE799698, BF206096, BE261163, BF206413, BF207220, BE262884, AW156939, A1696364, BF314126, BE274351, BE727781, BE274079, BF315253, BF311506, AL522338, BE312342, BE386675, BE617584, AK025729, AF139828, AF132951, AC008910, and AF143952.
HLHAW26	531	856982	1 - 676	15 - 690	AW966138, AA334784, AA359470, and U96409.
HKA AZ46	532	857100	1 - 779	15 - 793	AL528377, AL526620, AL525016, AU125634, BE541448, AW403508, BE781367, AW192307, BE866614, AU131672, AK022700, AF102851, and AL049636.
HAQAF12	533	857311	1 - 790	15 - 804	AU136448, BE903793, BE903753, BG176915, AA586576, BE831774, A1087937, BE831773, A1093911, AA813680, A1188578, BF997808, T90345, A1541326, A1540870, AW135361, R22633, AW135913, A1651792, R22632, BF837016, BG001236, BE774095, BF988360, BE067056, BE774105, BF996551, BF993353, and AK001898.
HTXEX35	534	857404	1 - 974	15 - 988	BE297624, AW861509, AA635033, AW295816, BE271022, AA086486, BF311840, AA345490, AA452442, AA150077, T89360, BE910434, A1090051, BE270837, BE513565, AA565672, C17985, AA574147, AW953005, AA345045, AW246828, BE502458, AV701650, T83387, A1188232, BF891007, T81575, R54455, AW197716, BF366833, BE082767, AW082895, R44834, T84125, AK026088, AB040924, AK025801, AK025357, and AF157327.
HE8TE64	535	857478	1 - 818	15 - 832	BG260560, T77601, F13022, BE819486, AW176702, R29135, BG033797, and AB018322.
HL3AC38	536	857623	1 - 1151	15 - 1165	BF690273, BE747012, BF689728, BG248343, BG035837, BE621181, BE744990, BG258252, BF316560, BG030079, BE410349, BG024606, AW409922, BG180843, BE314795, BE387681, AU129413, BE742504, BG222368, BE271515, BE909811, AU127513, AW150215, BE384233, A1829709, A1268295, A1379827, AA442815, AU151535, BE621854, AW404090, A1203710, BE858149, A1246732, AW088503, AA083573, T08067, A1142394, A1076760, T78227, AA626189, AW952606, BG122489, AA610734, A1628869, T31972, AA730146, A1250915, BE778414, Z39519, AW407185, BG036993, W85819, Z42081, N56151, AA446370, BF967860, R37876, AA583648, R37875, AW385406, BF922693, Z43439, AK023015, AF053628, AC005041, and AC007306.
HMUAO3 1	537	857664	1 - 942	15 - 956	AL523893, AL532371, AL528047, AL514988, AL536797, AL517512, AL526381, AL518934, AL530464, BF974928, BE792751, AL532291, BE794552, BE796681,

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HHAWD3 3	538	857697	1 - 1181	15 - 1195	AL520868, BF027000, AU143258, BF027048, BF026920, BE561485, BF027349, BE905983, BF033256, BF528140, BE870220, BF797577, BF794153, BG249297, AU127476, BE908190, AL520867, BF975211, BE739614, BF213004, AW960659, BF215875, BF218077, BE741921, AW602198, AA082654, BE792922, AW673689, BE792117, AW609584, BG032420, AW957421, AU118175, AV722650, AI632244, AI973067, AA171541, AV762777, AV740104, AA259077, AW675298, AI970197, BG256593, W47299, AI566084, AW889818, BE856364, AI970604, BE622440, BF795187, AA171510, AV737260, AW960661, W27244, AI186139, AA974285, BG250940, R63104, AW973647, AI393821, AW963194, AV761390, W46286, BE958292, T92848, AI801940, AA076964, W47166, N35537, AA377718, BF243852, AW139836, AI954760, AI968036, BF976012, AI621120, AA632217, AI638878, BE890724, AA258232, BF873993, AW293111, R63062, BF332291, AA554669, AI674530, AA932787, BF696408, BE087526, AW374135, AA323229, W05749, AW881901, AI560413, AI763145, W33065, AI522240, AW966291, BF437380, T80554, AI948883, W38887, AI525275, AW843228, BE068262, AI289392, AI400800, BE739151, T32536, AK022822, AF161384, AK002212, AF161385, AK000991, and Z61305.
HTZMB08	539	857723	1 - 390	15 - 404	Z22738.
HJBCE86	540	857743	1 - 1879	15 - 1893	BE741368, BG256289, BG113536, BF033848, BE898310, BE870809, BG167366, AA311866, AW969023, BE167520, AW814056, AW818350, BF825716, AI628496, AA504370, AW962851, W92916, BF062604, W93241, BF223494, AA377641, T87379, AA558693, BF816509, T79835, H05207, BF370823, AW956487, T84399, BE396475, AI202345, AI927617, AA504112, AA219564, AW875767, AW875928, BF969522, R94015, BF987109, AW440068, BE926223, T90221, and AK026976.
HFPCK56	541	857809	1 - 1929	15 - 1943	BE739833, AV751551, BE539375, BE619356, BE879961, AA012925, AA418407, AW028084, BF061035, AI690904, AI949671, AA449061, BE219361, AI955218, AA772167, AW771435, BG122658, BG056669, AI305287, AW952787, AI039957,

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HAPSP72	542	857844	1 - 790	15 - 804	AA883971, AA279963, R72577, A2407668, BG027230, A2653067, A2734755, A1423283, A1080765, H39710, BE894063, A2743087, BE089346, and AF090899.
HACBM44	543	857913	1 - 478	15 - 492	BF894434, AA772839, BE613856, AA070022, BG257837, BF683728, BE182197, A2816423, BE514232, BE269045, BE561837, BE297684, BE268536, BF686266, BE561914, BF348341, BF900754, BE270716, BE514301, BF902815, BE269031, BG035835, and BE889023.
HLTEO24	544	857964	1 - 579	15 - 593	D78845.
HHFJP51	545	857977	1 - 436	15 - 450	
HHFLL87	546	858001	1 - 1977	15 - 1991	BE730079, BF530314, BF338153, BE728474, BE467496, A2724172, BE703447, BE703444, BF967936, BE703446, BE703288, BE703411, BE703243, BE703287, BE703417, BE727145, BE276336, BE703324, BE703400, BE703310, A1814505, AA057243, BE703200, BE703244, BE703269, BE703236, BE703479, BE703326, BE703356, BE256491, BE703332, BE703331, BE410506, BE703225, AA719313,

BE670970, AI025014, BE670130, BE703277, BE703364, AW953988, AW904343, BF931510, AW604323, W92282, BE703272, BE703402, BE703336, BE703289, AI797104, AI368765, BE858615, T34894, AI190953, BF920729, AI417195, AA759265, W26202, AI459793, AA719557, AI0415807, AI041398, AA021416, BE703344, BE703226, BF931506, AA443248, H40581, AI885131, BF807028, AA046921, BF948531, BE857333, AI085643, AA046453, AA788914, BE045219, W27034, AI076384, W27614, BE700982, W27321, BF931009, BF948179, AI719655, BF899062, BF920283, BF364693, AI306509, BE348520, BE045244, W15183, AA443210, AW015179, BF822310, BE277415, H30618, BF364694, AA046467, BF931012, H30292, AA814559, N58834, H38989, AA057521, H46686, BF948173, BE045226, BE703410, AI457677, W39637, AI081726, AI961673, H46335, BF931512, H85817, BF804437, AA018314, AI797336, BF948524, BF948482, AW387092, R46308, BF807112, BF588479, AV707740, H86430, BF948142, W28790, H28098, AI566805, AA364376, BF931503, H81818, AI359186, AA019621, H92837, H49984, H41499, H85824, AW661828, AI936563, BE387789, AA857520, AA384821, AA016108, W22944, H50026, BE221046, H86229, BE766636, BG222840, BF808801, AI286075, N57572, AI368633, AI368634, BF839378, H46685, BF822306, AI244368, H40833, BF364677, AA069459, AA018171, R54956, Z40616, BF967140, H81819, Z44833, H41613, AI421538, BF960312, W92465, BF960305, H38426, AA337641, W15451, AA059271, AA364819, BF960302, AI554760, AA021417, AA702335, AA317646, AI272152, AA001002, BF960311, AA064816, AA365666, N75251, BF512150, C20695, AI860628, AA364065, AA412417, T34762, AW905446, AW360895, AA339520, T33755, AA364416, AA069648, AI219955, BF364518, BF948541, AW071980, BF059309, BF745933, AA015808, AA971878, BG055312, BF933229, AA782828, AA758433, AW905449, BF002025, AA873143, AA339033, AA059227, AA351091, H37786, AA016051, T31938, AA019659, BF090230, R46212, BF931501, H85354, T34932, BF934200, AW135898, BF931006, AI887051, BF931007, H86586, BF931504, H86090, BF967882, AI633477, BF957864, AA322532, R88814, N79281, H95912, BF364674, AI452993, H85357, AF093249, AF101054, AF100612, U89715, AF081583, AF071000, AF101053, AF100613, AF000272, AF118562, AF081582, AF071001, AF179306, E12580, AL049452, AB007812, E02221, AL110221, AF067728, AX042059, X63162, AJ010277, AF130077, U49434, S61953, U76419, AL117585, AK025239, X93328, AL162004, AF130056, AL080060, AF017437, AK027081, AF118090, AL137480, AL137547, AL355713, AF159615, AK027164, AL133016, S53987, AL080129, AC020581, AF119883, AB048974, AF130110, U92992, AK024545, AL050170, AK024594, U92068, AK026626, AB033884, AL080162, AL137533, A08910, AF013214, AF067790, A08909, AB016226, AK027116, Z82022, E12579, AJ242859, AL023657, AF015958, AL442082, A27171, I89947, AF111851, A08908, AF218005,				
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HCU DR30	547	858010	1 - 578	15 - 592	AL537942, AL534242, AL527448, BF696096, BE312444, AA304903, AW503291, BE901740, BE731529, BE243050, BE245640, BF853861, AA909013, AL527409, BG011149, BE564330, BF761193, AW663919, AI192939, Z19492, BF894331, AW263118, AW183340, BF925859, T30478, BE766913, AW450182, AA430358, AA430332, AB041605, AF211859, and AF185591.
HHFHI24	548	858020	1 - 627	15 - 641	AL133342.
HSIAI48	549	858030	1 - 598	15 - 612	
HHFBP47	550	858073	1 - 1051	15 - 1065	AA203115, AA001259, AW961743, H69425, H68732, AW341717, AA778598, AA346824, AA707336, A1632467, AL050350, and AC002464.
HKADE35	551	858104	1 - 830	15 - 844	BG119757, BG170168, BF307487, AU137041, AW583171, AI884713, AL761426, AW961739, AI816016, AA535378, BF684161, AI869337, AA131094, AI249699, AW614114, AI218746, BE295299, AI469925, AW961740, N79760, AA927285, AA902207, AI130718, AW882943, W07208, AA448078, W02262, AA115546, W72783, AA889154, BE940629, AI220570, R00154, R00155, BF434422, AW262887, AW450558,

HCFAW88	552	858107	1 - 756	15 - 770	AA130970, BF822970, AI361955, W21211, AA115083, BE856483, AI361947, AA347763, N48234, D12320, AL035690, and AK001963. AL533888, AL520318, AI951749, BE395042, BE251326, AI571803, AI021931, BE257270, AL530622, AW024940, AI023746, AA306490, AW295451, AI418206, AI240266, AI418223, BF216867, AW294426, AI343854, AI245358, AI767945, AA464683, AI350205, AV736738, AA977564, BF215223, W42796, AI301348, AW592778, AA974763, AA908999, AV740701, AI350678, N43024, AI037922, T67103, AA298928, AW190060, C14760, W42688, AA297690, T94495, T94475, AI478584, AW365898, AI656889, T62095, BF223309, AA868949, AI200903, N30921, AF063605, and AF161461.
HISCV20	553	858108	1 - 2725	15 - 2739	AL527328, AL527289, BG029721, BF115619, BE344694, AW964987, BF002108, BF002100, BF031529, BE788828, BF038066, AV694634, AW027782, BE785151, BG036326, BF031242, BF939550, BF382985, AA917321, AW977444, AA854957, AA521384, BF032638, AW466967, AW408024, BE789609, BE787439, AA844350, BE857617, BF242377, AA166975, AA913595, BE813914, BF841239, AA287827, AA418784, BF819991, AW996732, AI692485, AI276163, BE674010, BG167495, AW590272, AI129275, AI765667, BE738644, BE566867, AI311555, AI827288, AI097614, AA765231, AI968870, AA418730, AI192364, AI027867, AI744696, AV724655, BE041523, BE929880, AA233763, BE000998, BF438544, AI285236, AI056106, AA213557, AI167821, AI360036, AI289210, N53400, AW339321, AW170226, AI148737, N49395, AI767688, AA714352, AA287828, AA233814, AI803036, AI074273, AW999094, AI026044, AI287887, AI422736, AA884204, AA639449, AA166822, AI088180, BF750463, AW001792, AI536562, BE544121, AI935282, BE464866, AA001688, R78283, BE546758, H00831, R78865, AW016550, AA709410, AW197325, AA844412, AA406278, H67197, AA788787, H67870, AA468799, AI721067, H87488, R62257, T90260, AI766944, AI968836, R68949, D78677, T69966, BE000702, R62149, H87419, W32207, H87489, AA788735, BF994640, T90701, R94757, AA577055, R78284, BE000676, AI028057, N49484, AA342123, R31934, R24151, AI920949, AI636210, AI769630, R79352, R31980, AI371532, AA767915, W32264, AI146580, AW241443, BE551963, AW241500, BF332740, AI568885, AI953137, BE001102, C01870, AI656647, N39270, AW997327, AA903048, AI655771, BE171980, AI277792, AA889512, BE814493, AA700794, AA404318, AI041427, AP002023, AP002022, AL049963, AB020970, and AB020969.
HHEUE88	554	858214	1 - 1337	15 - 1351	AL523779, AU131189, AU133187, BE783561, BE867250, BF699945, BG037141, BG117680, AI739046, AW130603, AI695012, BE868966, AW405438, AA973733, T27227, AW575386, R44060, AA173346, R49395, BF436899, R35008, BE379331, H49151, R18946, AA347083, R14163, AI766126, BF447018, BG055004, AI421690,



					AL042544, AI142139, AI142137, AL119418, AL119522, AL043019, AL042896, AF181994, AK001716, AK023153, and AF181995.
HHESR56	555	858221	1 - 403	15 - 417	AW190508, BE257879, BE276412, BE902633, BE241087, BF312731, BE874333, BF027542, BE528144, AA453537, BF205635, and U62317.
HHENU62	556	858281	1 - 564	15 - 578	BG104528, AA836271, AT741911, AI032698, BG261359, AI281113, AI191665, BE568580, AW135688, BE170003, N24155, AW189382, BE392213, BE936240, BE541341, AI263150, AL529082, BE169971, AI032904, AW373723, AW904359, BF792763, and AF148713.
HE2RG38	557	858353	1 - 1340	15 - 1354	AW026983, AI096371, AW978449, AI805266, BE671144, BF313094, BE675256, BE671545, BE313399, BF126007, AI813506, BF527842, BE261326, BG030121, AI814357, AA278622, BE018768, AI703092, AW583230, AA706326, BF433201, AA488980, AI022087, AW968974, AI122704, AI818809, AI222918, AW072442, AI275108, BF829851, AI159815, AW193443, AA292263, AI423425, AI144320, AI609781, AA485429, AW104920, AI272950, AA428327, AI334199, AI033680, AA022909, AI086031, AI804628, AW190837, BE383669, BE677447, BE676774, AW136424, BF940449, AA258336, AA844188, AI740853, AA485593, AI057476, AW139461, AA278619, BF836072, AA829838, AW409894, BF836066, AI831028, AI417028, AA040603, W79625, AA063603, AI568977, AA009977, AI566791, AW207462, AA489202, AW473862, BF836062, AA258500, BF870248, AA054223, BF801885, AI476664, AA022977, AI564834, W84629, AW193442, W79481, AA278946, AA811062, AI263269, BE772525, AA854136, AI244605, AI017828, BF804301, BF823633, AA488758, H10442, AA843762, H40417, H51352, AA018100, H50514, AI813689, BF057494, AA057616, AA854370, BF877350, AW382297, BF528516, AI349422, W84680, H45660, AW601952, AW576325, AW381714, BE843327, BF742078, AA428852, H40805, AA830623, H45601, AA705407, BE720180, BE832334, N93711, R90839, AA844116, R47803, BF756715, BF756782, BF944304, AA504224, AA768075, BE938371, BF326394, AW601824, BF088729, BE070423, BF438701, BF761729, W21098, AA047781, BE929287, AA890426, W42938, BF757566, AI824215, BE938291, AA729090, BF836067, BF758306, AA065147, AW411171, BE784516, BG261000, BF312239, BF568526, AA036685, AI424954, BF791888, and AC004528.
HCEVS49	558	858355	1 - 3096	15 - 3110	U69564, AL537837, BF237602, BE741712, BE313325, BF568110, BE740552, BE799632, BE740533, BE906531, BG029791, BF341878, AL527111, BF312690, BG036285, BE798874, BE294282, BF689430, BE384979, BF314883, BF038180, BG222518, BE336694, BE264037, BG033664, BF058080, AW085697, AW954669, AW088228, BE221256, BF307166, BE251705, BF204265, BE900626, BE300976, BF690377, AI815879, BG114609, AW615570, BF315806, AI079461, BE349448, BG056733, AW958270, BE298933, AI813540, AL038992, AW190842, BF340695, BG106308,

					AL049094, BE256600, AV696220, AV693975, A1752278, BE504382, BG255364, BE260182, AU157496, BF984186, A1752277, AW006629, AW071607, AW029278, BE312303, A1675814, BG119218, AW300723, BE207152, A1983127, AW250994, BE537012, AW250316, A1183989, AW082832, H06527, A1803552, A1682029, BF950758, A1697628, A1027484, A1929185, A1187908, AW296985, AA720868, BE387598, AA070184, A1640815, A1221346, AW002534, A1684522, BE266062, AW892634, BF941957, A1978881, AV691335, AW008898, AA534593, F06591, A1041516, AA493405, H07063, AA601139, R41733, AA962036, AA593580, W22153, T50422, AW374824, BG179375, AA565593, AA330975, A1627854, BF981852, BF756421, H06582, A1244327, BE273002, F27429, AA780871, R63725, H16345, Z39572, BF963596, H07064, AA310536, AA377656, BE768408, BF445899, BE770301, A135247, AA326424, T50553, R64547, W81496, T15575, H44003, AW176593, AW390818, AA347673, AA070348, A1648464, AA378999, BF680725, AA353275, AA355852, AA374015, BE710163, AA180482, AA653185, AA627569, AA307441, AA630000, T16808, H42808, R63774, AA295697, R64546, AL049097, AA158424, AA179729, A1004515, A1290176, AA515558, AW290873, AA158527, AA708444, BE046307, R81768, AA992022, AA016091, BF984839, AW473834, BF337310, A1344056, BE010512, F37346, AB020697, and AK002076.
HKGBP90	559	858433	1 - 973	15 - 987	AU128527, BF796067, AL528220, BF239056, AA442422, AA479166, A1823507, AA479165, AU137156, A1217410, N31699, R00425, BE789559, BG177143, R10543, and AK001445.
HOELK66	560	858436	1 - 2304	15 - 2318	AU117405, AL530997, AL529169, AL135037, BE878842, AW955927, BE298245, AW960167, BE386483, BF593630, A1340318, BF727196, BE348748, A1436218, AW052084, BE222524, AW571483, A1352457, BE970217, A1984228, N41838, BE645325, A1340098, AA599198, AA418418, N51941, AA043809, AW182492, BF739941, AA890032, A1127842, A1702474, A1681103, A1744530, A1803215, AA705363, BE856644, A1090984, AW276355, A1080655, AW276410, AW105466, BE708316, A1277102, A1831903, AW089467, AW242791, AA626319, AU144241, BE464402, AU135117, A1261867, AA781551, BF196206, AW602876, AW275186, A1694852, AA678395, AA143320, BF593442, AA687211, AA417876, A1078241, AA969187, AA043660, BF900486, BF333655, AA336439, N24073, AU155838, AA309055, AA975959, BF433444, AA143356, AW935400, AA745787, BE090295, D79158, H73220, F32584, H60361, H68701, AA418460, A1468726, F36314, AA143369, T32005, AW001819, H26566, Z24843, A1864215, T52171, A1582960, BE710302, N53726, H84814, A1346204, BF572525, AA143308, A1268878, AA482531, T52182, AA210898, A1348618, AA922607, AA845288, Z28591, BF570631, H59089, BE697157, BF309130, BE073872, AA728919, BE697091, AA330170, A1073396, BE694982, BF348762, H26565,

HHFMX34	561	858449	1 - 1278	15 - 1292	AW843892, AW796682, TS2247, TS2258, AA928517, H50220, BF132441, AK000917, and AB023218. BE275378, BF791879, BG112790, BF968736, BG254462, BE275915, AW580665, BE263098, BE744965, BF973712, AI951844, AI697543, AA127398, BF063168, AI825828, C06390, AI744238, AI090282, AI498944, AW371122, AW371115, H95221, AA804499, AI394091, AI650279, AA419209, AA402808, AI086334, AA600979, W45242, AA419224, BF439274, H95222, AA402800, AW438677, AI092188, AA804612, BF772169, H41027, AI003494, AW044106, AA380652, AW958526, AI568586, BE930863, W42686, BE747861, AA618395, AW371126, AA554683, AA872598, BE062041, AI571424, AI702854, and AC068499.
HOUED48	562	858450	1 - 952	15 - 966	AL537074, BE733236, BF664002, BE734188, AL537980, BE541794, BF984256, BE278556, BG168068, AA621878, R16058, AL537073, R48625, BG118498, H06532, BE296427, BF915081, BF917935, T81623, W56243, BE929147, AI806997, AA279374, BE763432, AA531459, BF341872, AA279109, BF088660, AA279631, AI394672, AW087792, BE763399, AA767321, BG163730, BF526041, AA804782, BE833009, AI123992, AX035942, AF134404, AF139813, AC004228, AC003025, AC004770, AB041560, and T66644.
HHBB126	563	858451	1 - 1078	15 - 1092	AL537073, BG118498, AW005365, BG163730, AI133555, AW518845, BG231597, AA814375, AI419315, AI830935, AA642405, AA642379, AA262103, AI421947, AI886741, AW080967, AI088702, AW337792, AW769910, AW303866, AI085696, AW264721, AW263587, AI279180, AA731885, BG168068, AA807076, BF341872, AI375824, H06474, AA827586, AI127474, BF445799, W56323, BF526041, BG055791, AA279631, AA340771, R16057, BG028267, AI140643, AI523650, AA825264, AI400549, BF915081, AI755187, AI216692, BF917935, AI364162, BF886501, AI798264, AA531459, AA886229, AA279632, AA410667, AA730214, AA235582, AI784277, BE763432, C01213, AW273612, M91491, BE763399, AI277133, AI039041, AI052391, BF088660, AA621878, BF835624, BE833009, W56243, AL537074, AW963071, AW951748, AW953042, AW955684, AV692622, AV646990, AW959213, AW957665, AV645836, AV709607, AV652826, AW955967, AV704757, AW955639, AV697308, AV690866, AV707380, AV727361, AV709334, AW958059, AV657500, AW957944, AV646724, AV705873, AW965555, AW958040, AV696219, AV708726, AI557707, AV686516, AC004770, AF139813, AC003025, AC004228, AF134404, AX035942, AB041560, AB021980, AF126798, AF309557, and T66643.
HHAUZ72	564	858492	1 - 659	15 - 673	AU141383, BE537667, BF359516, AW166235, Z43858, AK000399, AL355103, and AK023885.
HWMAAM4 1	565	858536	1 - 1598	15 - 1612	AL520657, AL520658, AL522597, BE732295, BE790785, BE792835, BG104235, BE899593, BG248527, BF529516, BF128722, BF207081, BE797840, AV681522,

BE548729, AA034095, BE279990, BE262937, BE360958, AA099014, BF683179, BF149380, BE409895, AA443460, AA521261, BF149417, BF972266, BG231704, AI380466, AV708717, AL522596, AI601258, AI922591, BE559954, AI568423, AA521360, AI340192, AA576296, AI018766, AI292077, AI149390, BE222604, N26097, N56989, AA156490, AI751520, AI362844, AI092927, AI885624, AI554676, AA443342, AI144510, AI361418, AW073509, N39813, AI300469, AI302840, AA054959, AA134109, N26662, AA836018, BE546367, AI660772, AA045420, AI763377, AA999788, AW262496, AI148818, AA576417, AA961788, AI918062, AA045314, AA156140, H23879, N36737, AA887768, W01353, AA420615, AA102403, AA099091, AA055421, R40598, AI686531, BF222554, AI421021, AA363039, H47023, H42173, AA811052, AA631072, H85513, AA130256, AI969959, AI093973, AA702964, N62818, AI826514, AA443329, AI632688, AA357703, BE265435, AI470639, AI918816, AI472869, AA829362, AI868052, AA809432, AI186580, AA568573, AI241611, H23880, AI216887, H46484, BE766321, AA778803, BF896430, N47374, AA356491, AA102402, BF054717, D12235, AW402451, D12191, D12183, D12198, AI954721, AI500113, AV659451, AL043166, BG222794, AI798359, AI537677, AI648567, AI654286, AI560545, BG167830, AI927233, AI538615, BF812963, AI804505, AI815239, AI500659, BE883591, AI866465, AI474699, AI537643, AW983691, AI815232, AI866691, AI801325, AI500523, BF812438, AI538850, AA088789, BE885490, AI887775, AI582932, AI872423, AI590043, AI923989, AI284517, AI500706, AI445237, AI491776, AI289791, AI926593, BF811804, AW151138, AW983703, AI889189, AI521560, AW151974, AI285417, AI500662, AI623302, AI924051, AI539800, AI582912, AW172723, AI284509, AI538885, AI440263, AI889168, AI866573, AW058275, AI633493, AI434256, AI866469, AI434242, AI805769, AI888661, AI500714, AI284513, AI888118, AI285439, AI859991, AI436429, AI355779, AI623736, AI889147, AW194509, AI581033, AI371228, AI491710, AI431307, AI440252, AI440238, AI047422, AI567971, AI866786, AI860003, AI610557, AI431316, AI242736, AI784377, AI539260, AI828574, AI887499, AW151979, AI539781, AI431238, AI539707, AI702065, AI885949, AW089557, AI559957, AI285419, AI521571, AI872315, AI469775, AI932620, AI866581, AI696340, AI047398, AW074057, AI567953, AI815150, AI446495, A45787, AF130078, AK000484, AL049423, AI41579, I48978, AF132730, AC008897, AF260566, AL133607, AL137561, AF159141, AK026057, AF026008, AX040958, AL133084, X98066, AL133070, AX040974, AL133655, U30290, E13998, AL389982, AL049276, AI8777, AB011076, AR038854, AX010492, AL162066, AK050366, AK026571, AK025015, AK027136, AK026182, AK027222, I48979, AK026844, AF067790, AL080227, X83544, AK025377, X66113, I2888, AF130054, AR083264, AF183393, AF132979, U80919, AL133053, AK025669, AK000250, AK025589, AL133015, AL133608, AL133049, AR073709, AB047819, AR055519, AL133051, AL161628,					
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HCEOV70	566	858578	1 - 1020	15 - 1034	AF118558, M64936, S82852, AJ010953, AB038698, AB046105, AR034821, I80062, AL137463, Y18680, AL080146, AL359618, A07588, AR015970, AC012067, AL356098, A21103, S75997, X66862, and D12237. BF207316, AW952330, BE048308, W47088, R60686, T07981, AA136179, Z43256, T31228, T31051, BF870216, A1627772, AW731841, AA243646, A1269329, BF516127, A1885745, AA715133, A1243495, A1186338, A1669326, A687631, A1568648, A1221359, A1383362, A1440345, A1082826, A1382930, AW963418, A1991097, W15577, N31749, AA975036, W45551, A1685480, C14841, A1288512, AA243774, A1675227, T31221, AW152293, R33810, AW960536, A1167613, BF967918, BG118746, BF529216, BE24226, A1698949, BE793296, Z45670, AA193542, AA372274, A1401041, A1866509, A1948515, D56180, A1267727, BE858620, AA527774, A1375152, BE464336, A1161214, A1026748, T30406, T33877, W46985, A1682778, A1656572, AL121753, AR055638, and AB021226.
	567	858584	1 - 2339	15 - 2353	A1140348, BE893909, BG119201, BG032259, AL042724, AW084640, AV718292, AF074673, BF527847, AV699454, BE779623, AU145735, AU136318, AV745173, BF035488, BG058685, BE551010, A1343468, BF038639, AW575179, AW236238, BF081516, A1675472, AV748648, AV747531, AA126436, A1279164, A1935120, AW402514, A1694570, BF744463, A1924726, H99003, AU150689, A1418449, A1935109, AW173599, AW573224, AW070842, A19192729, W27038, AA775398, AW338994, AA649176, BE568748, BF588715, C05893, AA977091, AU147707, AA040367, A1424920, A1921383, AW960256, AW949850, N45992, BE350115, BF476721, AA111977, A1650806, AW263693, BG261284, AW057891, AA769208, AU156647, AA725733, AA903179, AV698412, W39236, A1040043, BE870586, AA599535, AA972949, AA663521, A1302523, A1050019, BF197335, AA907605, N20975, AV685581, AV697743, W15276, AA083695, T32401, AA976298, AV691284, AW891761, H14871, A1392652, AA133685, BE245943, BE170517, A1702518, AA120987, A1968600, H11921, A1015136, Z36868, AA342508, AA382400, AA133684, AW891763, H88183, H11922, A1830477, BF833298, BF833291, AL044850, AW236770, AA313178, AV689233, A1192221, AA448303, T18935, H88182, AW391124, H71942, AV689258, AA970675, BF839197, AV689254, H72101, A1968558, AA969871, AW407443, H49850, D61511, W31969, AA883364, AV689256, D62244, H13634, AW753793, BF059446, H72203, H49849, A1913682, BF833304, AA448439, BF742485, H14826, BF091774, N45991, BE144136, AA906369, H13635, BF082475, AA912678, BF334303, T36008, BF339109, BE693460, AA569907, A1128401, AL044309, AL044190, BE926408, BE719712, AA778495, AW365730, AW365655, AW365749, AW365756, AW365810, BF929195, Z21605, AW365732, BE000079, BF833286, AA130597, AW903428, A1478396, BF515163, AU121998, D63875, E08855, and L49502.
HKGDL95	567	858584	1 - 2339	15 - 2353	

HSKGN12	568	858602	1 - 1097	15 - 1111	BE910157, AL529252, BF691356, BG249744, BF029936, AL529251, AI310513, W37665, AI052380, AI215926, AI808790, AA843500, AW361977, AA436116, AA436013, BF830647, AW964440, AI087987, AI310417, AA830902, AI248752, N29253, D80500, AI697064, AA761738, AA668365, AV711889, W72451, AI338983, AI351654, AI769624, W76300, AI224359, R99781, N21671, AI031980, AA890666, I78987, AI695771, AA574086, AA732226, AI079679, H68341, AA305802, AI081638, AV684901, AV686045, AV683746, AV686019, AI096794, AV698854, BF031765, AW235947, R66569, R66568, H95196, AV745297, R99007, H96042, AA039725, R00926, R02165, H68273, AA318853, BF375156, H68274, R06733, AA352615, H68342, R06732, BE767051, AI910631, AA449967, AA725387, H95154, BF911521, AW020397, AW020406, BF339562, BF213611, AW961463, AI345416, AI345612, AL038445, AV721957, BF814449, AV703263, AV706775, AI345415, AV702994, AV726951, AI249946, AW161156, BE612681, BG105500, AI624693, AI470293, AW268122, AI452993, AI538850, AW961037, AW965840, AW950438, AW953974, AW965144, BF868489, AV683272, AV708834, BE393784, AV651436, AV706219, AV703168, AI686073, AV705384, AV660662, AV708622, AV729439, AW949453, BE880209, AW951273, AW949433, AV728670, AV753074, AV703042, AV727776, AW950035, AV701580, AV722222, AV696257, AV707727, AV726605, AV706744, AV707889, AV727980, AV705323, AV726229, BG029829, AV702147, BG105169, BF245586, BE620120, AL037582, AI567582, AL037602, AL040449, BF752858, AI886124, AI583670, BG249582, AI335207, AI866082, BG032036, AW827289, AW160905, BG259989, AV655425, BF339310, AW072719, BG163618, AI538008, AL121270, AW960594, BF814447, BF840674, AW963492, AI305745, AW161202, BG178689, AV708992, AV707541, AW945168, AV696106, BF338177, BG255493, BE883989, AI345477, BE138624, AW951263, AW958647, AV654896, AV689111, AV728157, AI591407, BF970449, AW953787, AV645906, AV685966, AV709869, AV704234, AV702026, AV683415, AV708893, AI680498, AV690007, AV725055, AV728806, AI281867, AV703222, AW954031, AI828574, AI358042, AV708653, BF341210, BG107315, AV652156, AW953965, AW952439, AW966420, AA743354, BF038131, AV727839, BF337857, BF343521, AV727990, BG256592, BG110540, BE880182, AV704696, AV705632, BE536058, AV698087, AV726624, AV706721, AV709604, AV708004, AV704955, AV708075, AV702117, AV702932, AV701707, BF032910, AV707753, BF822127, AV705341, AV706987, BE874133, AV652027, AV704269, AV652443, AV693527, AV650024, AV707024, AV702804, BG113224, AV705693, AV701620, AV707296, AV704934, AV709390, AC004955, AF119875, AF218031, AL137547, AF126247, AL353956, L04849, AK026504, AK000432, AL080140, S68736, Y10655, AK026885, X84990, U35846, AF183393, AF159615, AF314091, AK025435,
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HCEGR84	569	858644	1 - 753	15 - 767	AW204578, BF966371, AW300069, AL379847, AI097001, AI151002, AA912671, AW771594, AW028224, AA782451, AI185208, BF063419, AI038115, AI197987, AA854229, R50482, N22840, AA845504, AI023017, R96092, AA463741, H09091, AI051475, AI269281, T03489, AL162092, AA844252, AW027484, BF592798, AI025730, D51423, AV654329, AW978634, AW975605, AW959799, AW949657, D59859, AW949641, AW949633, AW978661, D51799, AV720151, D80253, AW966534,

AV720878, AV699447, AW958993, AW975613, C14389, AW966369, AW973490, AW962395, AV701839, AW956434, D80366, AW964488, AW960473, AW966059, AV719557, AW975618, AW959582, AW966053, AW964532, D80166, AW973474, AV699866, AW973334, AW973445, AV719324, AV718440, AV720028, D59619, AV718931, AV720731, D80210, AW960553, D80240, AV719822, AV718489, AV718692, AW973307, AW973447, AW949645, AV718938, AV718633, AW966378, AA305409, AV718707, AW973488, AW966386, AV720211, AW966368, AV720616, AW966331, D80164, AW966398, AW966397, AV722801, AV723927, AW959136, AW949656, D81030, AW949642, D59889, AW966029, BE047783, AW959202, AW966075, D51022, AW966065, AW966388, D57483, AW960465, AW966022, AW966399, AW966531, AW966041, D58283, D80212, AW973473, AW966333, D80188, AW966013, D59275, D80248, D80022, C14331, D80219, D80024, AW966330, D80195, AW966343, AW975621, AW978648, AW966385, D59467, AW965163, D80391, AW973541, AW966030, AV720791, AW966054, AV723097, AV720203, AW964756, AW966050, AV719188, D80043, D59787, D80227, AW966062, AV719783, D59502, AW959597, AW959628, AW965177, AW959570, AV719468, AV718800, AW965185, AW965197, AW965196, AW973485, AW965184, AW949632, AW965175, AW966400, AV718844, AV720464, AV718770, AW966332, AW973482, AW966380, D59610, AW958992, D80038, AV724520, AW959062, AW964477, AV699550, AW962082, AW964468, AW949654, AV699927, C14014, D80439, D51060, D81026, D80269, D50979, D80268, D80196, D80133, AV720533, D80522, D50995, AW959469, AW960454, AW966032, AW973330, AW956397, AW949629, AW949653, AW949631, AW949643, AA514186, AW949618, AW949655, D59927, D80251, C15076, AV700229, AA305578, AW949646, AW966043, D80193, AV718530, AW964737, AW962245, D80045, AW965158, AV700889, AW966389, D80247, AV720150, AW960532, AV721386, D80241, AW949658, AA514188, AW952839, AW966329, AW966377, AW360811, AV692290, D80378, AV718487, AW752082, AF181862, AJ276101, AF202640, AX015108, AX015106, AC004131, A62298, AR018138, AX033851, AR008278, A84916, A62300, AR087649, AX027925, AB028859, AJ132110, AR070327, AF058696, AX047063, AX047064, A82595, AR060385, AR008443, AX021518, AB002449, X67155, Y17188, A94995, D26022, Y12724, AX035434, A25909, AX028130, AX020191, A67220, D89785, A78862, D34614, AJ302649, AX020190, I50126, I50132, I50128, I50133, AR066488, AR016514, AX047062, D88547, AR060138, A45456, A26615, AR052274, AR077702, AR074139, Y09669, A43192, A43190, AR038669, X82626, AR066487, AR074136, AR092424, A30438, AR054175, I14842, D50010, AR025207, Y17187, AR008277, AR008281, A63261, AR066490, AR008408, AR091537, I18367, X64588, AR062872, A70867, AR093385, AR016691, AR016690, U46128, AF260572, D13509, A64136,				
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HMIBL51	570	858727	I - 1336	15 - 1350	<p>A68321, AR060133, I79511, AR074545, AB012117, X68127, AX015396, U79457, AF123263, AJ287395, AR032065, and AR008382.</p> <p>AI097463, A W960794, BG059801, AI752173, AI752172, HI9400, H26745, A W268864, AI122830, H51125, AI906421, H18956, AI906384, H26746, R34416, AI825621, Z18872, R12212, R48953, C04825, A W900894, H43180, AI168299, R39933, H43173, A W373873, AI624279, BE047737, BG249582, BG118829, BE048071, AI269862, BF527014, AI364788, AL040243, A W023590, A W087445, BG180034, BG164371, BF339322, BF812933, BF341801, BG120816, BF924882, BF970449, BE047852, BF338723, BE876033, A W827276, BF038131, BE868721, BE874133, AI537677, BF970768, AL045500, BF038469, A W150578, AI923509, BG031815, AA427700, BF344031, BG180608, BG179993, AI567940, BF726504, A W148716, BF032768, A W827289, BE047952, A W302988, AI439762, BE781369, BE963035, AL045266, AL043326, AL036361, A V682224, A W301505, AI564247, BG036846, BG110517, A W827150, BF792469, BG032208, AI275175, BG252040, BE622183, BE887488, BE904178, AI909642, BE877769, A W673679, AI433976, BG034373, BF795712, BE876539, BG257535, BF812960, AL079963, AI620284, AI538716, BE910373, AI538085, A W151138, AI569583, AI433157, BE018334, BG252929, AI815232, BF794994, AI539771, AI560099, AL134830, BG259944, AI445237, AI802542, AL121463, AL041150, AI500659, BG026428, BF814335, BF342371, AL039276, AI500523, BF812438, BG113299, AI500706, A W167410, AI491776, A W082113, AI815855, A W663332, AI648663, BF793308, BG251840, BE962978, AL043981, BF032868, BF339594, AI440239, AI687127, A V710882, AI590120, AL110402, BF883916, A W129659, AI539808, BF726297, BG112879, AL121270, AI801325, A V732936, AI580984, AI284517, A W071417, BF816042, AI499463, AI500662, AI648509, AI433037, BE047738, BF727092, AI633493, BF971016, BF726234, BF341210, AI439478, AI269205, A W059837, BE620444, AI475394, BF726322, BF793324, AI345551, BE886728, A V755484, AI064830, BE895585, AL049085, BG163618, AL042551, AI281779, BE875407, BE172767, BF751308, A W262565, A W132056, BG058398, BF344652, A W806761, BF812961, BE894455, A W163464, AI682841, AL513763, BF882334, AI702406, BF727091, BF885081, BG026194, AL119791, AI554427, BF726001, AI500039, A V682333, A W117882, BG035511, BG168185, A V758053, BE048135, AI921248, AI554245, BE048179, BE884130, AI801544, AI349598, AL514205, AI284509, AI273142, BE880016, BF526020, BE048081, BG113662, BF968205, A W104724, A W301409, BE785868, AI624206, BE964633, AI811344, AL119863, A W168650, BF822127, BG180605, AI637584, A W238730, BF982059, BE048105, BF792961, AI559296, BE048319, BF089711, AI680388, AI274508, A W170635, A W149869, AI890833, AI926790, A W026882, BE880182, AB032956, AF130082, X82434, AL137459,</p>
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HFXP30	571	858754	1 - 2537	15 - 2551	D79552.
HCHMP94	572	858877	1 - 1199	15 - 1213	BF939994, BE620901, BG170181, BE620502, BE905496, BE005985, BE005990, AI674742, AU150515, AA195064, BE222944, AW071814, AU148556, BG251413,

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HOHBO69	573	858909	1 - 364	15 - 378	AW630180, BF132395, BE619018, AI752163, AI752218, N24399, AA853686, and AF170702.
HBJHY72	574	858921	1 - 915	15 - 929	BF222613, BF941410, AW275961, AI686347, AU151359, AU151569, AU150662, AV720613, AW377892, BG122948, AW272610, AU151393, BF223195, BG057268, AI942440, AW874425, AI949454, AI655342, AA156549, AI655418, AI651318, AI859622, AI859617, AA954124, AI916986, AA424182, AI652842, AA496259, AA424148, W88540, AI580494, AA074960, W89109, AA280900, AA618034, AI206332, AA974228, AI338824, AA074858, AI357321, AI076443, BE933553, BE091175, AI241952, AI989578, M78676, BF941418, AI766753, AA565427, T89641, AU128364, AW499904, AW499911, Z41191, BE708873, AW080116, AI350462, AI040388, R41201, AV647200, C05973, BE544316, AW978609, BE263591, AI816939, AA098874, AI653947, AA029119, AU119473, AA463387, AA522876, AA379162, AA098873, AK022906, AB037850, AL117434, and AK000668.
HWEAD78	575	858922	1 - 2346	15 - 2360	AU119473, BE072346, AU128364, AW499904, AW499911, BE161468, BE263591, BE544316, BF241478, AU129185, AV729276, H27254, AV725346, BE743904, AA379162, AL040387, AW992595, BE933004, BE939983, AB037850, and AK022906.
HFIBK06	576	858956	1 - 1199	15 - 1213	AL537184, AL523750, AL520348, AU122788, BE797283, BE887064, BE783716, AU131787, BE887275, BG249844, BF219702, BE889304, AW247014, AU135592, BF347062, BE280543, BG113772, BE314953, BF809145, AA308737, BE740470, AI907235, BE279259, AW839828, AA205849, W40565, BF846036, BE384335, T08947, BF846252, R59040, BE251083, BE245174, AA375700, AI803239, AU131982, AW390655, BG167322, AA361672, AA043617, BF986975, AW960746, T31957, N34599, AW971311, AA513608, AA524801, D52264, AI525368, BE933109, R30696, BE933105, AW866905, AB030656, AK023205, AL162070, and AF143957.
HE9RF77	577	858957	1 - 2234	15 - 2248	BG116787, BG030182, BG119659, AW956344, BG163645, BG255674, AI761804, BG033898, AW369665, AW389533, BE868389, BE151239, BE150853, AW995271, N33854, BG106803, BE150885, AI765925, T83665, BE090367, BE827584, R60133, AI306129, AA227714, AW962603, N35083, AA234587, BF999990, AA359612, BF804739, BE700926, BE700921, BE700888, BE700889, BE700889, BE830922,

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HCEU61	578	859028	1 - 1017	15 - 1031	BF341491, AI767651, AI589623, AA400566, BF115657, AI818507, AI631748, AW966544, AI241021, W49494, AI360216, N36825, AI088457, AI687348, AI184624, AI080611, AI332650, AA400439, N51437, N46045, AI589863, F33824, AW612127, R84966, AI201265, BG256778, H26760, AA371890, AW294498, F01574, F01436, AI282573, C01894, BG032810, AW998037, AI383111, AA441812, AV709550, AA576476, AI292343, AI016405, AI393723, and AB002373.
HOHBV41	579	859036	1 - 779	15 - 793	BG023818, AW264567, AI955702, AW029356, AW190464, AI434815, BE223051, AI379631, AI312093, AA992746, AI418415, AW263423, AI417035, AI340286, AW517525, R78732, AA844303, AA621350, AW294515, AA055976, BF724716, AI690653, H53571, AI381263, AI823331, H68231, AA894634, H81302, AA486868, BF112143, BF350992, AF133270, AB017168, AF055585, AF074960, and AF144628.
HHFKC41	580	859165	1 - 1892	15 - 1906	AL522225, BG251695, BE615453, BE621274, BE778253, AA001374, AW958621, BF035632, BF334269, AW069590, BG165550, AV748885, AI087401, H04619, AA196770, AA584259, AI669634, AI147246, AW002729, AW089973, AA939329, AA019571, AA019711, H38587, AV723034, BE159453, BE621739, AA460365, AI470612, AA588221, AA311610, AA588216, AA019527, AA404411, H37760, AA460800, BF836835, AA196954, AA018852, H38831, AA019136, AA019135, H04596, AA404455, AW582732, AW293162, AC007282, and AC007279.
HMWGG4 4	581	859189	1 - 1364	15 - 1378	BE747051, BE267452, BE735420, BF182723, AI052724, AW161870, BF575655, BF115433, BE256444, BF000503, AI913268, AW149537, AW300318, BF111120, BF592884, BE788800, BF970070, BE389782, BE388555, BF106224, AW301181, BF062431, BG248851, AA916783, BE389632, BF575694, AI697738, BE258720, BF438232, BF939467, BE253566, BE464972, AW058513, BF673668, AI768818, AI332904, AI492208, BF677792, BF678560, W63721, AI697607, AI147929, AI338973, AI082464, AI185715, AW014596, BF196789, AI800232, AI290995, AI343779, W26018, AI813458, BF676098, BF671648, AA988008, AI818434, AI027432, AI917221,

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HOEMM2 3	582	859190	1 - 758	15 - 772	AA295856.
HTXPN78	583	859200	1 - 1773	15 - 1787	BE791706, BE888802, AW513963, BF104898, BG104821, AA985515, BF509221, AW182937, BG261303, AA348358, AW079155, AW300190, H69933, AA348359, AW402120, AV754429, BF974717, BF380380, BF377580, BF377576, H69934, AW899237, AA226506, BF203862, BF203940, AI905559, AC007707, AX013775, and AC002037.
HFPGR87	584	859201	1 - 1111	15 - 1125	BF951582, AW292146, BE219796, BE727496, AI986443, AI090829, AI628616, AW027274, AI268453, BG149995, AW299772, AA774673, AA236436, BE674268, AI240399, AW580591, BF035724, AI656303, W30801, AI209138, W67127, AA928985, AI342424, AA897588, AA011594, AI399911, N54506, H10777, BE219126, AI095670, W00624, AI681205, BE671383, R97990, BE670708, R96573, H64097, AW960926,

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HE8PR67	585	859233	1 - 2029	15 - 2043	BF979993, BE739707, AV702925, BG106294, BF979709, BF692048, BE875658, BG031577, AW969065, AW956307, BF238848, BF692490, BE877500, BG106556, BF698610, AA207196, AV753989, BE738926, AW021187, BF664882, BE958062, AA504569, AA449737, AA829922, AI539784, AW512129, AW337939, AI138369, N77204, AI017279, AW383910, N55014, AA897441, AA403320, AA504491, AW754093, AW779014, AI580029, AI420315, BF350751, BF664695, N51514, BE567997, BF445259, AA307575, BE243004, BF350753, BE241746, BF381782, AI362376, AL042903, AL042904, T19234, Z30261, AW082350, BF691646, AV682713, D81181, AV694509, AA452416, AV683703, AV696706, AV687084, AW385610, AA322970, BE958022, BE153413, N53183, H00502, AA375872, BF240189, BE241573, AV697950, AA741120, H00455, AA813763, AA587893, AW836387, BE242796, BE247179, BE247629, AC005702, AC004686, and AF100745.
HD/TDZ65	586	859250	1 - 2884	15 - 2898	AI983651, AI817037, BG249957, AI683067, AI659859, AI955784, BE880691, BG119746,

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HWAEV63	587	859588	1 - 2195	15 - 2209	AL530512, AL529983, BG260188, AW953134, BF967960, BG104525, BF665953, BF341687, BG168414, BE355530, AV715541, BF109210, AW243070, AV716267.



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HOHAV17	588	859636	1 - 306	15 - 320	BE840188, A1905641, A1905602, BE840138, BF817426, BE838164, AB007882, AF250226, AF250227, M94968, I29958, M96653, and M93422.
HNTAW95	589	859688	1 - 2064	15 - 2078	AL533275, AL518996, AL516727, AL515121, AL516013, AL519080, AL533414, AL533320, AL515122, AL535892, AL536767, AL516728, AL533915, BE793733, AL518997, AL519081, BG116860, BE740410, BG026322, BF979878, AL516014, BE256738, BE794527, BE314646, BE791233, BE739562, BE870505, BF689369, BE908996, BE898620, BE740904, BE253757, BE621666, BE742297, AA663402, BE273432, BG109392, BE271768, A1749681, BF690325, BF980275, BE747111, BE905181, BF982282, BE744445, BE905182, BG116858, BG035810, BF968775, BE878241, BF689256, BF206149, BF314320, BF312011, BE543547, AW411275, BG110294, BE276030, BG116802, AW411274, BE893138, AW812908, BG110488, BF205402, BE898724, BG105616, BE731840, BG115896, AW581998, BF981356, BF688449, BG026004, BG116702, BF237645, BE793880, BE904837, AL514413, BF032774, BF206119, BE262554, AA069771, A1984167, AW609222, BE336828, BE621057, BE299314, BF339826, BG164333, BF036991, W61039, AV710687, BE207665, BG254515, AW813044, BE794941, BE740140, BE315068, BG037134, A1811719, BF038894, BE741879, BE206818, AW239225, BF038117, BG168378, W93647, BE618763, AA033947, BG105303, BE901598, BG153417, AA310963, BE301933, AA205591, AA974657, BF334349, BE271907, BE669915, BE264445, W37967, A1859431, AW517122, AV710853, BF666953, AW248624, BE842720, BE796325, BE266280, AW517129, AW517130, AW473258, AW163744, BG254521, BE892331, AA843508, BF108670, A1690440, A1954937, BF380269, A1623711, A1742213, AA845593, BF377351, BE905456, A1683612, A1590981, A1096682, AA436801, BE741766, AA522778, A1004409, BG113350, A1862994, AA975649, BE842721, AW167963, AA479136, AA176155, AA193567, A1422233, A1580124, A1825927,

AA486415, BE315054, AA927559, AI885600, AI580740, AI591107, BE537532, AI915518, AW581976, AI684051, AA009649, AI199673, BE155960, BF208789, AW163216, AA191595, BG250428, AA176265, W93480, AA983238, AI191852, BE873939, AA191088, BF038235, AI342059, AI591178, AI628008, AI275832, BF248394, AW083868, AA069747, AA629322, AA489273, AA843996, AA069988, AW385050, AA024712, AI084978, BE407320, BE206425, AI570580, AA976239, AA009650, AI628339, AW189973, AW026972, BG178101, BE612521, BE300807, AW172819, AI884391, AI288515, AI934840, AA604210, AW162307, BE264102, AI248770, BE254767, W47039, AA704570, AI245629, AI167350, AW473283, W37907, AA436530, AW439316, AI683081, AA436789, BE299034, BG113458, AI040382, AW076039, AI970774, AI492005, AI950039, AA062553, AW160342, AI276744, BG034096, AA187461, AA219693, W47001, AI811766, BF380272, AI583507, W93907, W39303, AA600214, AI276485, AX013736, AC011666, AC004941, AL050277, AX019230, I48978, AF008439, AX019229, AL122098, AK025092, AK026927, U67958, AB019565, AF130110, I89947, AL110221, AL133104, AK024538, AK026947, U35846, Y11587, AK026592, AL117394, AL050138, X53587, I48979, AF067728, AX042059, AL389978, I33392, AF119909, A08916, AL122121, AL122110, AF116644, AF119337, S68736, AF130099, AF130075, AB049758, AL117432, AK026533, AL080127, A08913, AK027113, I89931, AJ238278, A08910, AK000614, AR087170, A08909, AF119865, AX005848, AX005804, AK025383, AL390167, U91329, AF017437, AK025391, AK026542, AK025084, AF017152, AJ012755, AI2297, AL117435, AF155148, AF090900, AF260566, AX027129, AL133568, AK026480, AB047887, AL122050, AK000432, AB047615, AK024601, AK025209, AK026462, AL137463, X72889, AR011880, AK024524, AB052191, X62580, AL389939, AL117457, AL359615, AL133560, S61953, AF113019, AF119899, A65341, AL133640, AB048919, AF119871, AK026744, AL117585, AF026124, AL050116, AF116631, U80742, AF078844, AK026597, AF166267, X70685, AF116602, AF116646, AK026608, I09499, AF113676, AK000391, AK026532, AL080137, AK000652, AF119894, Y11254, AL133080, AF119878, AL117460, AK025798, AR079032, AL122093, AK026534, AF111112, AK000618, AF113677, AF118094, AK026583, AK026642, AK000137, AF225424, AL049314, AF111851, AL359618, AK027213, X84990, AF207829, AK026593, A08912, AL050393, Y10655, AL049283, AF116610, AF113699, AK026045, AF183393, AK000250, AF158248, AL359620, AL080124, E03348, AK000445, AL122111, AK025958, AL137459, E15569, AK025312, AF242525, AL442082, AF146568, AF090896, X93495, U42766, X63574, AB048974, AB034701, AL080060, AL137526, I03321, I09360, AL133093, AK000647, AR000496, AK025906, U39656, AL359596, AF130092, AX020124, AF262032, AF125949, AF138861, AL133077, AL442072, AL110225,					
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					<p>AK026551, AK000718, AF119883, AF090943, AL162008, AB041801, AF218014, AF130100, AF177336, AL359583, AK026506, AK026741, AK027193, AK000083, AF119860, AL162006, AF113222, AL137538, AK027164, AF155221, AK025573, AL162062, AF125948, AL096744, AX006092, AF177401, I00734, AL137527, AF130104, AF314091, A93016, Y16645, AF119875, AL110196, AL137556, AL133075, AK027116, E00617, E00717, E00778, AL353940, AL133072, AF116639, A03736, AF1106862, AK026408, AL162002, AF116691, AL359941, AL162083, AF116688, X82434, AL122049, AF130055, X87582, A77033, A77035, AL080159, AF087943, AK026651, AB050534, AL133081, T91695, T93293, T66462, R15836, R60788, H08985, H09554, H15053, H15979, H20478, H20477, H44848, H44848, H47008, R93650, R94503, H68590, N34566, N40310, N68583, N71953, N73926, N80565, N99688, W03688, W07688, W15260, W78028, W93479, N90393, AA021576, AA021181, AA024795, AA063160, AA070055, AA070503, AA070827, AA074887, AA074966, AA082515, AA173262, AA173214, AA180261, AA180262, AA193645, AA221020, AA232172, AA53460, AA582453, AA582521, AA580476, AA738132, AA746751, AA847628, AA872023, AA873630, AA902422, AA911719, AA916877, AA932257, AA938746, AA953714, AA972536, AA992338, AA995410, AA995835, AA996334, AI017360, N56174, N56385, N56499, N84281, W25862, W25920, W26271, W28186, C00064, N86810, N88243, N88374, C03892, C05097, R29207, AA641563, AA089514, AA093111, AA093881, AA094784, AA100995, AA206353, AA207255, AA209340, AA218882, AA219425, AA219646, AA293615, AA406524, AA411683, AA436478, AA442312, AA442833, AA4448359, AA479137, AA599779, AA653399, AA663418, AA669347, AA629658, AA4447848, AA448216, AA677429, AA709332, AA719509, AA757453, AA757465, AA779516, AA782122, AA843169, AA844306, AA846723, AA888881, AA773520, AA992115, AA993694, AI003539, AI003634, AI023690, AI033095, AI038759, AI076327, AI079853, AI084555, and T15777.</p>
HMCFL79	590	859704	1 - 1609	15 - 1623	<p>BE546066, BG109406, BE379645, BF978193, BE892410, BE082642, BF672283, BF691685, AV725658, BE380072, BE299117, BF691026, BE958510, BE866753, BF103593, AI937467, BF439480, AW607429, BF590387, BF247893, BF590371, BF439193, BE645427, BF570784, BG118463, AV735234, A1768672, BE298301, BF918137, AV736490, AA306911, BF526727, BF805208, AV737302, BE349241, AA631255, AI379431, AI417918, AV651883, N32991, AI364114, AI805864, AV748959, AW172946, N24951, AI803532, AI373454, BF677779, AA417777, BE568440, BE644619, AI804016, BE677819, BF431881, AA454874, N66437, A1248190, AA236327, AA410332, AA194847, AV727230, AI080662, AA253340, AA455215, AW771164, N25572, AI493377, AA253341, AA041383, AI263832, AW363079, R48785, AI198504, AI285888, AI609725, N32983, N29642, W85944, N34173, AI476685, AV741272, AA453693,</p>

					AW796481, AA779249, W03073, BF082982, AI097052, N57800, AI039131, AA447763, N33828, H67305, R48892, AA917742, AF009748, AA678352, H92561, N39763, AI570076, AI671962, T89546, AI567294, AI687940, AA676643, R78498, H92560, H68516, BF878310, T79378, AA156699, AA935904, N26320, N44626, BF590068, H66023, T89457, AI302837, AW794655, AI242372, AI360709, H47139, BF901936, T96827, AI432161, BE079628, T79808, AW235543, BF351697, T83501, AA150496, AA410293, H00257, AV686882, BF968314, T83354, N80274, BE161556, T96828, AA558941, BF929013, H83449, BF437126, BF360676, AA953562, AW148311, AW137851, R78548, AW293056, AV738007, H00258, N56596, AA725174, AA808331, AI142619, AA933830, W07402, AI470993, AA353349, AW074436, AI547173, AA236261, N35285, AI914834, AW084142, AI927381, AV749118, AA253287, BF904433, H83557, AI637752, AI653950, AI978587, AA721206, AI784215, AW607425, H47064, AW874445, C20821, AA258665, BF759812, AA565986, AF151030, and AF151032.
HNTCT36	591	859756	1 - 616	15 - 630	AW903227, BF110321, AI700529, AI914090, AA928868, AW903168, AU155259, BF695175, and AK023367.
HTPDM61	592	859769	1 - 473	15 - 487	AL522665, BF339746, AW249192, BE265921, BE393914, BE892643, BE266417, BE276850, BE513134, AA029165, BE298350, BE792880, BE298002, BF982749, W79853, BG178248, AA252556, AW900859, AA380921, BE781902, BE889319, AA337900, AL522664, AA029014, and BF808447.
HTFOH87	593	859792	1 - 1453	15 - 1467	AL536389, BE261837, AI870285, BF437544, BE855831, BE313954, AI740447, AA628521, AI807623, AW194323, AW974180, AI869959, AA682958, AW006075, BE221224, BE221133, AW592367, AI311383, AI266583, AI951168, AA531611, BF000785, BE466198, BF948898, AA573097, AA587614, AI924712, AI284261, BE552029, AW169523, BG056895, AI937762, AW973083, AA961235, BF509853, AI589865, AI343385, BG177232, AI199264, AI954243, AI657066, AI686031, AA588241, AA576988, AA935554, AW839717, AW606575, AW606572, AW606569, BE074402, AW867504, BE965204, AW606567, BF874349, BF930606, BE703814, BF926000, AW367074, AA662528, BF930728, AA737525, AW384424, BF802846, AL136802, AL035659, AB028954, and AJ223207.
HWBDQ3 2	594	859796	1 - 912	15 - 926	BG252190, AU125263, R67199, H06664, BF823722, AW962825, Z44258, BF573302, AA356182, BE778619, BF909319, AW246341, BE152140, AW604791, AA323879, BE799060, AI341565, BF432008, BE206890, AA977148, BF762398, AF108459, AF108460, AF108461, and AK022652.
HCHMO53	595	859797	1 - 773	15 - 787	AV661850, BG169511, BF206995, BE787624, BE292793, AA149518, BE292947, BG167015, AW248322, BG248919, BG165453, BE788739, AW955265, W68799, BG165990, W803556, AW027341, W80631, AA807542, AW006772, AW006753,

					AA405876, AI568522, BF436364, AA142865, AW014568, AI831235, BF032073, W68728, AA135477, AI077951, AI038765, BE351031, AI371106, AA634984, AI279024, AA927093, AI131300, BF526325, AI346693, AI818983, AI040435, AI862834, AI672933, AA847380, AW090192, AA725414, W49698, AI308968, AI342232, AA405750, AA719097, AI222540, AA135567, AW960497, AI038328, AA291233, W78749, AI342828, N94738, W17032, AA308326, AI088656, BF939427, AI032894, AI022131, W49697, AA806295, AI077792, AA878384, AA704008, AA973620, AA708319, N89773, AI355923, AA306672, AI093528, AA056216, AI271747, R92271, AI215791, BF055447, AA040439, AA724958, AA894581, AI014948, AW005009, AI146870, AI041232, AI220135, AI184832, AI216830, AA056217, AI682824, AI161403, AW371794, AA906636, T34735, AA301648, AA464688, AA610246, AA304676, AW009773, AA303948, AA380765, AA772960, AW189904, AI018514, AA534787, AW998332, AA613084, AW248085, W78953, AA303607, AW079652, AA996272, AA364075, AA046631, AA303545, AA356933, R91942, D25597, H90498, AA229336, AA700414, AA704184, AA428953, AA303514, AA642176, AA809653, AA932960, AA872832, AI963537, AI636251, AA284154, AA781331, AA992512, BF751365, AA040438, AA228480, C20802, BE168202, and AW376045.
HNHMC08	596	859848	1 - 1589	15 - 1603	AI532424, BE796156, BE903161, BG119647, BG115219, AV699322, BF002481, AW194103, BF038249, BE906258, BF182905, BE501114, AW518690, BE537490, BE547105, BE512805, BG115212, AW575036, BF448095, AV689102, BE465647, AA570483, BG117796, BF739874, BE889876, AW958913, BE887067, BE872403, AW611943, BE384518, BE622262, AV683442, AW571485, BG108121, AW247071, AL134627, BG117816, BE967159, BE740380, BE903834, AV705406, AV685709, BG057337, BE390982, AA532739, AI950034, BF770215, BE255357, AI831065, AI791597, BE793003, AW025209, BF027150, BF983938, AI733101, BG115901, AW072315, AW088486, AW250423, AW027992, AI872396, AI822039, AI978692, BF350738, AA526905, AV698580, AA004890, AI521711, AI859462, AI589001, AW062708, AI149487, BF362487, BE960754, AA932997, AI709015, AW269349, AW269185, AI140101, AA725306, AW002658, AA481316, AI554225, AV651040, AW516405, AA600310, AI352315, AA651838, AA134415, AI635661, BE789385, AI431710, AW661983, AW235534, BF801604, AI284946, AI753373, BG116918, AA705577, H20713, AW269158, AI983743, AA134414, AI248592, AI942429, AI873092, BE407231, AA913640, AI933816, AI633977, H15546, AI360370, C04532, AA004615, AW401864, AI262449, H38876, AW269279, AV689181, AV686947, AV691088, AV695596, AV698710, AV690337, AW134805, AV684746, AV684712, BE709891, AW732631, BF591225, AV737229, AI685722, BE719073, AW517538, AA384219,
HDPFH27	597	859875	1 - 2136	15 - 2150	

					<p>           HS2328, AI701951, AA112729, C03711, AA337888, BF509713, H17067, AA299451, AA844628, AI628603, R23191, AI018039, AW606047, AI767301, C04547, H15605, T99856, AA086474, AA846145, AA907827, AW050938, AA913178, T99761, AW021529, AW835589, AW303950, BF52104, BE546597, BF733587, AW269300, AV697434, BE925417, AV684535, AV697433, BF229301, AI687274, BF950259, AI547123, BE171111, BE925400, AW189104, BE167919, BE167953, BE093130, AA496397, AA496496, BE465721, AW408394, AA907899, AA496348, AA496621, AI834231, BF944340, R23192, BF835225, BF328375, BF819405, BE387526, BE932835, AW401626, AW059616, AK000775, AF100928, AL049703, AF131759, AB041723, AF100927, AL049704, Z81364, and Z81370.         </p>
HE9QX59	598	859884	1 - 1481	15 - 1495	<p>           AL514538, AL514537, BF973179, AI817229, AI719701, BE886848, AA861817, BE540864, AI857532, BF685664, AW953035, AU138568, BE541809, BF882981, AW170236, BE259078, BF116039, AA628530, BE731736, AL519005, BF058771, BE279433, BG236321, AI798088, AW276128, AA706544, AI690592, BE729327, AI936242, AW592540, BE300820, AU145726, BF725260, AL519004, BF058688, AW955634, AI288590, AU160340, AA609185, AA456446, AI288876, AA970744, AA476974, BE536381, AI269892, AU144344, AI280579, AA683364, AI269921, AW589468, AW183024, AI040325, AI369398, AI351847, AU143208, AA758680, AA037108, BF112266, AA974377, AA758854, AA846734, AI814293, AI827548, AI453628, AA463523, R08676, AA147166, AA161014, AI193078, AA160382, AI201408, W16606, AA477089, BF111557, N90320, AL042894, BF360688, AW194229, AI740486, AI457573, AA371940, AI223040, AA973339, N79569, AA341176, W19442, H54815, AI950731, T30595, AA454554, AA477508, R53741, BG005749, AA884950, AW393957, AA845365, AW370725, AI866999, T84668, AW370708, AA846211, AA714469, AW369715, H00344, AA216600, R27147, BF929692, AA429209, AI128440, AA329092, BE563792, AI351335, AA528113, BE958302, AI126212, H03105, BF377228, AA463488, AI167833, M85773, AI200155, R16578, AA295749, R16639, AI565210, AU143358, BE389527, BE281130, BF111975, AW263392, AI565222, AU136484, AU119365, AU117537, BF762325, R34221, AW962615, BF762284, AI886201, R34337, AA653519, H99435, AW006535, R08584, AA770337, AA382340, AA368753, AA729833, BF998521, BF985475, BF686840, H54868, BF945926, AI250874, AA343278, AI223232, AA904652, BF752789, AA904391, BE389444, BF925539, AA405515, AA161013, BF994235, BF994186, BF350866, AI873197, AA789193, BE729299, T54560, AV659190, AL137749, AF220530, AK021526, AK001325, AF207640, AF251265, AF220259, AF220255, AF220258, AF220253, AF220256, AF220254, and AF220257.         </p>
HNFEU66	599	859891	1 - 1422	15 - 1436	AA670314, and AI526181.
HLDQW16	600	859895	1 - 1201	15 - 1215	AW968490, AV648655, AV719386, AV720529, AV720417, AW378442, AV691210,

AW378450, AW341649, N63582, AI417183, AI376604, AI817536, AI554261, AW172741, BE221352, AW151796, AI311322, AV654698, AI419377, AA781933, C75553, AI564742, AW629665, AA487091, AI697365, AW615283, AA837196, AW801663, AA458946, AI265792, AW801507, AA748540, AV648814, AV648798, AA576089, AI880593, BE878191, AA448646, AI359101, AI043146, AA459589, BE465219, AW191981, AW889679, AA169302, AA459364, AW801492, BE328813, AW959894, AA312946, AA171664, AI347680, AA811486, AI079927, C05862, AA618495, AI360716, AA649087, BF435611, AV699558, AW135311, AI146600, Z21901, T19436, AA448742, AI540742, AA514684, AW088944, AA312953, AI355849, AI277008, AL514397, AV755459, AL514871, AL514093, AI635634, AL514085, AW088903, AA857847, AI269580, AI368579, AI932949, AI863321, BF970652, AL515191, AL513779, AL514691, AI637584, AL514793, AI434969, AI357599, AI241901, AW129230, AA488429, AL514627, AI925404, AL513999, AI537273, AW080290, AI872154, AL514473, BF033757, AI473451, AW055252, BE966577, AI620056, AL514823, AI282355, AL513817, AI247005, AI036187, AL513713, AL514155, AL514497, AL515413, AL513755, AW087901, AI950729, AL514511, AW105459, AI863382, AI446511, AA908294, BF814357, AL514357, AL513907, AW262491, AL514409, AI689463, AI701097, AI591420, BE966547, AA808175, AL514791, AW263569, AW118496, AI798351, AW090550, AL513693, AL515321, AI953765, BE966443, AL513553, AI539153, AW085786, W38553, AA916133, AI688854, AL513979, AI040011, AL514721, AW075484, AL515195, AL514015, AI702073, AI096771, AI927755, BF909758, AL513631, AL514457, AI590021, AL514455, AI538564, AI683173, AL513977, AI623941, AI362537, AW169462, AI636719, AI784214, AW161156, AI690946, AI635851, AI863466, AI491775, AI891102, AL514087, AI359787, AL513783, AW169132, AL514919, BF126355, AI537303, AA449768, AI590227, AL513913, AI866624, BG250746, AI565172, AL513597, AW243886, AW089439, AL514359, BF724683, BE890427, AI339115, AI628711, BF752997, AI371984, BG179099, AL514493, AI569975, AI539578, AI640873, R36363, AA814782, AW198090, BF766531, AI862139, BG108244, BG109857, AL514867, BE888257, AW167777, AI250627, AW827285, AL515235, AW236466, AL514415, AI583558, BE965111, AL514657, AL038529, BE544111, AL513723, AW189332, AW090086, AW128841, AW192652, AW073996, AI890838, AL514063, AL514407, BG109998, AI458237, BE966927, AI824648, AW075613, BE965014, AI680226, AW082033, AW131294, AL513991, AI687127, AL513865, AI630928, AW073677, AW102785, AI683475, AI133074, AK025792, AX035208, AI131776, E02221, AB052191, AL389935, AL080060, X80340, AF130066, AK026452, I32738, AK024588, AF017152, U87620, AF119875, AK025119, AK027204, AF114170, AB050510, AK026626, X86693, Y13350,				
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HTLGS48	601	859918	1 - 1550	15 - 1564	<p>AF116610, AL117460, AB049880, AL359601, AL133075, AK025798, AF067790, I89947, X06146, I48978, A86558, AF118094, AK025092, AF116688, X63574, AF130054, I17544, AL117649, AK000083, AF013214, AL117648, AK026613, AL390167, AF155148, AL162002, AL050172, AK025407, AK027188, AK050024, AL137271, AF090900, S83440, AL389947, AL133558, AK025099, AL137523, AK026749, AF116639, AB047248, AK024974, AK027164, A08907, AF130100, AL110296, AF200464, X84990, AL080234, AL137547, AL050092, AL137480, AF130059, AL137627, AF036941, AR072149, AK024747, AF031147, AF047716, AK026038, AF195092, AL049426, AL133104, AL389982, AF065135, U95114, AL137530, AF218023, AF116646, AF106657, AL080126, AK025465, AL162004, AL137276, M19658, AF176651, AC004227, Z97214, AK024986, AL117587, AB041801, A08913, AF094480, AL050116, X53587, AR038854, AL050322, AL133080, AL359583, AL359623, A08912, AL110224, AL359618, A08911, AK000718, AK027116, AF113690, AK027113, X66862, A07588, AK026583, AK026642, AF143723, AF177336, AK025209, Z49258, I66342, S77771, AK027221, AL096751, E01614, E13364, AF119843, AK026542, A18777, AL136884, AL122106, AF116609, AX017991, AB050431, L04504, AL122121, S76508, A08910, AF116631, A21103, AK026408, A08909, AL049996, U70981, X66871, AC004399, AF130055, AK000137, AK027173, AF232009, AC023880, AL080148, S54890, AL133084, A08908, AF217966, AR000496, U39656, S82852, Z82022, AX046749, AK025414, AF061981, AF001346, AL122100, AK027142, I09499, AF090896, AL049430, AK027104, AL359620, AF175983, L04849, AF126247, AB026995, AK000247, X99257, I26207, Z72491, AL137258, AF119909, AL137459, X59414, AK025524, AL023657, AK025113, AL133665, U72621, AF104032, AL122050, I68732, AK024570, AL133049, I89931, AF119337, I30339, I30334, U92068, AL080159, AF119871, AK026797, E01314, AK000753, Y14314, AX019230, AF130082, AF260566, AJ010277, AL050155, AF139986, AK027136, X62773, AF116682, AL137537, AB049892, AR087170, AF067728, AX042059, I48979, AF218014, AK026762, AK027146, AB048975, AF109155, AR053103, AB040710, AF185614, E06743, AF199027, AL353957, AL122118, AK026532, AR029580, AF111112, A30330, A30331, L04852, AF145233, AB049849, AB047623, and AB048919.</p> <p>AL538031, BF526296, BE905499, BF975915, BG171024, BF975640, BG166390, BG105861, AW027692, BE906058, BE868887, AI066792, AI674075, W73135, AI126174, W73115, AI918136, AA806473, AA687840, AA651704, AI080064, AI131085, BG122007, AA652620, AI798216, AA938305, AI673640, W76098, W93683, R51338, AA814727, BF437388, W72893, AW874617, R01699, F08949, T19610, BG055686, BF435545, T30370, AW304419, F11288, R59377, R13096, BF941749, AW474081, AA670391, F11866, AW016848, AA809829, F09511, R19220, AA351891, BF804668, BE839292, AW958005, T19611, AI380671, BE839293, BE703233, R59435, BE693695, BE703274,</p>
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					BE769891, BE703492, BG166271, AA358209, BF217305, R40528, AV701813, and AB028173.
HNHDY54	602	859973	1 - 581	15 - 595	AL532144, BE410198, BE739589, BF688595, BF340680, BE895261, BG106482, BF688986, BF000082, BF204415, BE792338, AW370556, BE905733, BG164347, BE910617, AU134636, BG165967, AW026312, BE789287, BE273796, BE739343, AW956434, BF924505, AW298245, AA923304, BF924340, BF214675, BF725735, BE273078, AA452936, AI954739, AI660828, BF879439, BF209436, AA058760, BF919249, AA039704, BF218803, AI493723, AA641666, AA502611, AI540196, AI436565, AI817852, AW370493, AW058671, BG106316, AW304317, AI128059, AI831204, AW068407, AA446627, AI189995, AI831213, AA740469, AI041255, W65295, AI026922, AA443840, BE271871, AA831862, AI952042, AI669862, BE856167, BE961207, AI206467, AI244961, AI356276, AI376919, AI475488, AU155552, BF925739, BF446119, BF931287, AI015178, BF343980, AI301359, AI707965, AA721617, T17379, AA452800, AA312359, BF001302, AI146728, R21538, AA053685, BF592004, R86654, AA551944, BF926640, AA281320, R86831, AW440523, T90016, N89584, AI198746, T90113, N59584, AA053240, N41034, AI431987, AA340053, AI056728, AI658607, AI867342, BE938514, T82842, AI090164, AA984822, AW996480, AW067939, AA918334, AA706016, C02143, AA947728, AI612974, F10063, AA026963, BF869132, W65393, AI694016, AA054963, AI091083, T82937, AI932841, BF868875, BF223553, AA039703, AA837231, N89995, W16890, W22072, AW849327, AI110828, BG036614, AW152000, AK001812, AJ242910, AJ242909, AJ242911, AC007881, I76211, AFI69202, AF218033, U75370, I08319, AB049852, X58257, X02750, AK026544, AL137561, AC005284, AB041801, J00983, AK025541, U96074, U51124, AF016628, AC009286, and AF241734.
HWLEL47	604	860167	1 - 607	15 - 621	
HNGJG75	605	860381	1 - 1020	15 - 1034	AL139350, and AL121781.
HKAJU40	606	860461	1 - 803	15 - 817	AL525892, BG168263, BG024910, BG252569, BG116842, BE548363, BG111172, BF342806, BE873077, BF796412, AL047081, BE789986, BE895653, BF666232, BF038167, BE901533, BF694320, BE565807, BE958018, AA306766, AW247734, BF126617, BF028981, BF677714, BF697113, BF694321, BG250559, AW578577, BF694106, BG164398, BE745350, BE866413, AI207533, AW247663, BE395875, AW327322, AA312716, BG120984, BF242965, AA448791, BF825824, BE903785, BE614007, AA102314, AA085594, AW959471, AW195768, N77750, BE563987, BE266889, AA663722, BE176308, BF940756, AA302924, AL043489, W22308, BF930779, AW195779, BE091077, BF920976, BE176316, BG255456, N88476, AA083268, AA297926, AW579209, AW959155, BF245164, BE891471, N45249, W93292,

					AA361895, AV661756, AW795436, AW162171, AW195783, D45268, AW131662, AV743272, BF345629, AW364862, C20604, BF345498, BF345625, A1824162, C15962, BF345497, AA297481, AA706803, BF572375, D61558, BE774649, BF345699, AW795455, BG256383, BF345691, W92073, BE169496, BE169778, AW513782, AW193502, A1828497, AA858097, BE169443, BE169499, BE175566, BE175575, AA574144, W79341, AW073964, R32988, BE175500, AW327526, A1860786, A1582783, A1906960, A1360138, AW795457, W56837, AF176008, AF085361, AB042815, AF176009, and M61937.
HYABL83	607	860565	1 - 1735	15 - 1749	BE713343, BE713372, BE883801, BE713345, BE713359, BE397530, BE713362, A1767336, A1767347, BE713351, BE713361, BE713368, AA827135, AW965741, AA235135, BF948857, T36519, AW080491, AA429313, A1651687, A1970359, AA700540, BE269627, BE154189, BF511427, AW382882, BE154324, T07689, R71531, BE154254, AW382883, BE706806, AW382878, A1457154, T08799, AW382906, A1074248, T07847, AA367765, AA310553, A1962121, AA234828, R72990, AW842083, R17265, A1934128, R73600, AA890391, R71481, R36263, T56470, BE146311, AW382921, BE706097, R36264, BF923395, AW082392, C02924, BF923380, AW994547, AA113443, R84816, BF799684, AW994544, H16138, H26925, T20200, AW965751, AA004985, H72436, H53973, AW269219, and BE938571.
HKADF82	608	860617	1 - 798	15 - 812	AL526910, BE744744, BE731087, BG163270, BE897309, BE261655, BE541795, BE788891, AV753197, A1908497, BE140267, A1908495, AA884619, AW806502, BF374293, T10439, BF244108, BF700570, BF696636, BE388395, Z44955, H06611, AK026904, and AX011642.
HNGEK43	609	860646	1 - 659	15 - 673	BE747585, AW976171, BE898748, AV745344, BE741004, BE878725, AA427627, BG258661, BE560683, AW959187, A1937301, BE245403, AA868377, AW516875, A1828651, AW170518, A1217153, A1743424, A1363389, A1673073, A1366674, AW001889, AV745623, AA922149, AW084488, A1275905, A1744705, A1685377, BF196332, A1384044, A1339568, AA811193, A1739227, AA461505, A1923644, A1056371, H20137, A1797976, A1800824, A1472127, BF445946, AW130654, A1970737, BF059008, A1659951, A1632980, AA741261, A1142039, AA552337, H39189, A1739226, AW206054, A1445211, AA813881, H45408, A1392978, AA825932, AA968938, W02514, A1394459, N98700, A1269770, A1214924, A1364323, AA969916, A1378436, N66099, M62040, AA708841, N77979, AW089002, BF879827, A1248327, AW137018, A1201319, R68081, N74564, AA693839, AA460579, A1356177, H46909, AW615186, AW023399, T34433, A1247905, AA714852, A1934509, H70607, N58389, H66226, BF763404, R68118, AA906882, T80644, A1218643, BF739982, AA677948, N80438, A1264237, R53500, BF877861, AW389409, A1000835, AW207229, A1243765, AA835650, BG261241,
HTAJS93	610	860849	1 - 2187	15 - 2201	

HE9P148	611	861223	1 - 2782	15 - 2796	<p>BF904778, AW151974, and AK025886.</p> <p>BE561224, BE748770, BE799836, BE781793, BG260953, BF795165, BE736001, AU135779, BE908447, BF207190, BF3060911, BE746281, BF303777, BF038783, BF313302, BE892326, BG257144, AU140031, BG250622, BF206248, BE394264, BE268099, BE748461, BG250629, BF530381, BE393019, BE784409, BE617189, BE744127, BE269386, BE868316, BE397085, BE271847, BG036325, BF182918, BG253106, BE262724, BF984080, BE513571, BF308427, W81694, BF791489, BE789288, BE269621, BE871321, BF527751, BF219942, BE397777, AW410125, BE746290, BE464784, BE392193, AA314814, W81695, BF341140, BE617993, A1628536, BF939068, BF589431, AA868185, AA868483, BF841520, AA699561, BE669864, BF838993, AA309433, AA909193, BF310227, AA868274, AW956468, BE208549, A1697632, AW771433, BF315662, AA496104, A1692693, BE939155, A1092158, AU117067, D57936, BF316480, A1688593, AW410126, A1188397, AW150851, AA626397, AA568888, A1813424, AA005092, A1640324, A1309959, A1023783, A1140398, A1095450, AW661738, A1624290, A1248235, AA722417, AA286868, AW057822, BE046374, A1356084, A1417370, W56479, AA826110, W01304, A1702987, AA039308, AA100004, BF327483, AA916678, T03518, A1985697, AA807081, AA976850, BE261528, BE271934, A1625349, A1367402, A1142964, AW250070, BF993017, AA349376, AA805474, AU156279, A1494346, AA581027, A1278313, AA351768, A1135370, A1188395, AA837455, AA293616, A1206231, AA909390, A1807229, AW801639, T80295, BF852346, A1367421, H28984, A1884886, AW801783, A1283305, AW190232, F02684, AA373612, AW296498, F06394, AW130126, AA976849, R98902, AA370738, T91458, AW732260, AA580961, AA359229, AW242094, BF378704, AA906487, BE826088, F02664, AA379588, F02665, BE514157, F06376, A1198456, A1090744, BE837123, H67769, AA642851, AA379444, A1220040, BE837234, BE909757, BE826091, T91367, AA223465, BF992994, BE837394, F06375, T92153, BE397383, AA303694, AW051873, A1214855, AW806479, AW806487, BE856618, AW806679, BE348880, A1909784, A1559980, R17894, BE140291, BF743676, AW818297, BE044367, AA223644, BF743142, AA689538, A1024504, AA374168, AA214689, AW169983, BF056276, R43140, AA377775, BE677852, AW750972, T16600, D57303, H29089, A1686974, BE140391, AV736288, AV736267, AW751048, A1373533, BE833472, AA352907, A1802358, AW751040, F05152, A1392785, AW751043, BF309534, BE140106, AA730600, BE961938, BE140243, A1905177, A1472424, F00871, BE397091, R57538, AA773382, T93580, BF183790, BE140356, BE742557, AW751046, BE936628, AW893579, AA496103, C03919, BF220021, BF759532, A1940333, D14694, AF042731, and D10234, A1745624, AA469990, AW956151, AA412063, AA418818, BE645499, AA412263, N94496, A1360797, T15410, A1266500, H19051, BE855516, AW392398, A1085869,</p>
HPRBC95	612	861227	1 - 1114	15 - 1128	

						AI269499, BF221746, F06527, R74356, BG121222, Z39475, R74355, R62954, HI9341, AA989436, AI868725, RI5818, AW205608, T32733, AA371207, BE160822, AV658297, W23946, AI273078, AW513602, AI920908, AA368274, BE160927, BE160917, BF104911, AI206019, AC008821, AC008924, and T66444.
HDPUM54	613	861242	1 - 481	15 - 495		BG009438, D25538, AC007597, and UI2919.
HHFLL92	614	861294	1 - 2638	15 - 2652		BG167313, BE900315, AI039400, BE884344, BG249782, AV753572, BF308572, AI871719, BF058945, BF339648, N36098, BF061439, BE439990, AA662205, AI140127, AI457676, AI811001, N24770, AW298622, AI432423, AI885705, AI333169, AA563808, AI139522, AA129404, AA864279, AI192746, AW118992, AA939209, AA668916, AI564757, C75552, AA847888, AA662165, AI696929, AW606651, AI814553, AA204900, BE746388, AW961767, AI057234, AI814745, C75086, BG169516, AA490113, AW028941, AA897467, AA574248, AW407202, AA171602, AA602132, AI921109, BF336840, AI432792, AA121160, AW815421, AW511846, AI049727, AA122378, AI567567, C75461, AI221449, N93237, W25094, R63270, AW293990, AI039399, AI240631, H83038, BE383532, AW961429, BE669771, AW294261, W57576, BF761772, N80146, AA131639, AA441953, H27740, BF921799, AA359095, AA378415, AW794926, AA382847, AI700223, BF743361, AA328820, AA923716, AI432486, AA342845, AI187829, AA339884, T10609, C00558, N44101, AI340252, AI335635, BE241876, AA204851, AW590717, AA789162, AU127908, AA347918, AA709295, BG014393, BE729337, AA862673, R34037, AA830387, AW962476, BF086375, AI828118, W03673, R63222, T10371, C17620, AI361169, AA171502, AA603411, AA347917, W72108, R33496, AI868913, AA131721, N58100, H95738, AV737030, AA382846, BE925376, T18550, N87322, R45910, H82819, AI027852, BF856921, BE766858, BE241628, BE218663, BF989825, AK026076, and AL137588.
HMCHK65	615	861307	1 - 622	15 - 636		AUI38426, BE777959, N57268, BF086933, BF086946, BE093384, AA456756, AA172291, AI375670, and AK002100.
HAIDK89	616	861328	1 - 2312	15 - 2326		BG252095, BF794285, AW965312, AW977747, AI126305, AA443175, BF195835, BE246211, AI338421, BE907520, BE244122, AI044740, AA679079, AI913238, AI333023, AA972520, AA838427, AW605328, AI307325, BF222431, AA463484, AI805628, AW630931, AA828370, AW078809, R43305, AI225223, AW006036, AA587907, AA922459, AA707365, BF923727, Z45320, Z45577, AA332396, AI205049, AI928687, R82447, R82448, Z41035, H81876, T96841, AA362022, F04432, BF878445, Z44629, AI740575, AA937210, C01328, T96842, BF763516, F03673, T19711, H81899, H81875, AW081213, H81900, AI658899, AI863622, BF939300, T19712, BF923780, BF804036, BF894323, BF763515, R47213, BF911270, AI623302, AI431307, AI431316, AW972093, AI431337, AI431235, AI791349, AW968355, AW968356, AI432644, AW968729, AI432643, AI432651, AI431330, AW971740, BE672745, AI432647,

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HTOHL88	617	861361	1 - 1463	15 - 1477	BF111995, BF111899, AW051348, AI807015, AA349378, AA349433, H05458, F02812, T50073, T39468, T39511, Z43427, T50009, AI372659, BE843943, BE843903, BG015163, BE938621, AA860404, BE843892, BE698483, BF092079, AI372657, BE301746, BG015653, AA496848, R89202, AF169301, AX040922, AX040934, AX040924, AX040928, AX040936, AX040940, AX040930, AX040942, AX040926, AX040938, AX040932, and AX040944.
HMEKU54	618	861611	1 - 702	15 - 716	BE743073, AV721074, BE744621, BG177628, BE315199, BE731132, AA044813, BF964898, AV724264, AW958685, AA293644, BE394890, AI141037, AW964442, AW054852, BE903034, AI693593, BF975326, BF975857, BF975327, BF974460, BE409839, N48184, BF115585, BE672854, BE407753, BE042539, AW513188, AA551870, AI309256, AW008397, AI816062, AI885030, BF223532, AW007352, W39069, AI879497, AI660034, BG178962, AA642443, AI878998, AA283774, AI572009, AI199482, AI815979, BE173475, AA513683, BE173419, BE702293, AI202821, AI768808, AA025347, H01948, BE906559, AW769817, H71578, AI20856, H13523, AA291596, AA044838, AA290879, AI885158, AW007082, AA923113, H89912, AA935928, AA593956, BE072983, H84051, AA570459, AA318740, N53331, AI197973, AI908082, AI640612, AI245242, W32234, R34586, AA312590, AI611579, AA025355, AW512766, W32199, AI586956, BE703159, N89813, AA934930, N75572, AU144164, AA502925, N50180, T98429, AI810695, AI215873, AA987745, H04498, BE006750, BE006747, R34585, BF968659, BF431132, N56327, AW022203, AA252664, AW955053, AA322938, AA406368, AU117281, AW404162, D62795, AF041429, AK021489, and AL022069.
HOOBR51	619	861620	1 - 1094	15 - 1108	BE904302, BF568253, AA452165, AA426015, AW952776, AW805228, AI288193, AA084096, BG055477, AA682907, AW960624, AA398343, AA947931, AI197950, BF510821, BG056413, BE179883, AW089706, AA452397, AI420512, AA293851, AI694330, AI968970, H49529, AW372112, AI368631, AA428101, AA740545, AW089957, W90083, BF591892, AI347092, BE394895, H49767, AI016563, AW893221, BE075371, W90209, AA205212, BF591840, AA338815, BF437055, AA335913, AA338814, T19311, AA031975, AI272681, AA031974, AA205167, AW893301, AV703152, AW953924, AW960227, AV702681, AV708320, AW963866, AW958104,

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HAMGP34	620	861668	1 - 2624	15 - 2638	<p>BG261130, BG121213, BF347966, BF796462, R17115, BE899286, AI123525, AI697325, AW575256, AW402585, AA032055, BF724098, AW402594, AA031919, AW402872, AW026287, W89010, AI341715, AI926967, W95778, BE783654, BF887406, AI078627, AI376419, AW089489, BF381332, AA740604, BF507805, BF888120, AI015866, BF744292, AI963299, BF907549, AA954836, BF888127, AA233002, BF907541, AA768759, AI669291, BF888128, AA232951, AI768850, BF744299, AW090314, AI571824, AA480645, BF888074, N53675, AA886377, BF888119, N73038, BF799491,</p>

					AA535561, A1217778, N51612, N53906, BF381336, BG251027, A W001670, A1864506, BF744934, W95735, BE819619, A1674508, BF381311, AA016130, AA743705, AA917873, A1241168, AA649797, BF887394, AA631017, A1480218, BF907590, A W302053, BE139664, H86222, Z39059, AA954334, AA456896, A1244571, AA015836, AA485019, A1806785, AA715038, AA827439, BF745018, A W271993, AA954612, AC083866, and AK000208.
HHELG22	621	861683	1 - 1379	15 - 1393	AL515768, AL515769, AL514640, AL514639, AL519556, AL519557, BF967595, BF341094, BF791789, BG109630, A V728675, AL519901, AL519900, BG122004, BE736572, BF307579, BE779163, A V746319, BG107882, A V714586, W44679, A V752184, BE894935, A W968505, A1890560, BG163396, BE891391, AA099273, BG031520, BE895633, BF735925, BF726338, AA878212, BE542157, AA732222, A V713978, BF921086, BE763324, A W575099, A W575100, BF965804, BF967512, A V752080, A1740578, BF732808, A W150933, A W276564, AA926775, AA044713, A W954811, AA454649, AA456262, BF203162, AA813289, BF210990, BF575453, BF808054, AA916010, BF940195, A1419983, BE541856, AA165256, A1928819, A1745053, AA187083, AA143151, W93810, A W469220, BF766017, A1738911, A W440214, N35185, A1078212, A1929089, BF224030, A1761914, BE165923, A1693625, AA932898, BE672485, A W271592, A1148178, A1394261, BE763355, A W006011, A1056934, A1095473, AA480903, A W172367, AA099321, A W166446, AA679256, A151528, AA524497, A W401929, A V723979, AA609394, A1589306, AA936450, BG111109, AA150234, H29463, A1339779, BF928362, A W965434, AA860734, AA045037, A1125169, BF816513, N75627, A1962015, A1283124, R60626, W93921, AA232412, A W022061, A V731141, A V707127, AA424453, AA598407, AA181330, BF675970, A1123977, AA558445, A1278557, A W262834, W44680, AA706261, AA909819, BF095999, AA854946, BE940752, AA152292, AA493826, A1633473, A W614151, AA045036, AA885111, AA480965, A W873084, A W663737, A1220625, A W511995, AA142975, AA131268, A1420791, A1351559, A1539546, BE827423, A1039077, R69711, BF677981, BE676828, BF109079, R60573, A1091994, A V746110, A V753918, R60615, A W401927, A1809414, A V728150, A W001015, BE175156, A W511876, R50906, AA011658, AA939113, BE172078, AA282098, BE221361, D20566, H09532, A W001802, BF242055, N23387, H99061, AA446423, A W105368, A W021290, AA837337, AA918671, A1492760, R09389, R43281, BG152427, AA558589, A1766977, AA814917, AA805117, AA492542, A1369989, AA731128, AA151608, AA782945, R60559, AA854134, N51623, R55346, AA099856, W32425, R01681, AA494474, N88951, A W403780, AA927109, AA307931, AA843253, A W880292, AA902532, A W674571, H29464, BE180364, A1580882, AA932617, R69619, AA098894, BE073178, AA988282, Z25933, N53918, AA332589, T03883, BE825215, A W889212, A1192032, T93602.

					<p>AA933936, T93646, AI371024, AI940158, AI613518, AW631074, AW804820, AW362250, AA917023, R81357, R25995, AI628325, BF032355, AI538615, AI589428, AI687568, AK000462, AK024302, X99971, AF059611, AK027160, A65340, AL133084, AL133559, AK026408, AF132730, AL355701, AF131773, A65341, AF113019, AF217973, AK000250, AK026155, A31001, AL050138, AL161802, L04859, AK000027, Y11587, AI110221, AL133619, AL080159, AK026684, AL359941, AB041801, AF061981, AL050366, AX011612, U92068, AF225419, A41579, AF119865, AF113222, AC008243, AR094160, X97332, AF204760, AF183393, U73682, AL080148, AL389982, AK026182, AL133653, M76612, AF067790, AF267739, X99270, AK000484, E01314, AL137574, AF022152, AL049761, U89906, AB028451, AF155148, and AK027161.</p>
HDPTD75	622	861707	1 - 1764	15 - 1778	<p>BF526777, AU135741, BG167203, AU128904, AW006887, AA917667, AW959212, BG165640, AI823982, AI817412, AI096744, BF813121, N20594, AA486563, AI283813, AA486661, BF727039, AA040017, AA535449, N26872, N28990, AW015508, AV656080, N24306, F29139, AW504127, F37068, AA634817, AA595340, AW802992, AU156247, H65527, AA057074, F26541, AA760741, T96318, AA609581, AW016529, AA359399, AA580145, H65329, BF686563, AW148479, T93478, AI569865, AA948624, AI678948, AA056928, BE711537, BF989599, AA424016, AI954356, AA010653, AW629350, AI612865, AA973778, AW276616, AW275190, AI350811, AW439574, AA876151, AA911289, AI218492, AI077876, AW675663, W93593, AI244408, AW193200, AI302550, AA226255, AI241127, AI816714, AI206467, C02093, AA954030, AI277607, AA709434, AA813934, AW440434, N53061, AI354477, AI187313, AW074284, AA872499, AW410741, AI202853, BF335325, AI265804, AA906037, AI241581, AW074122, AA134769, BF692695, BF573377, AA873196, BE300852, AI004585, AI813620, AW504945, AA972976, BF900118, BE513950, AI526811, AA641954, AA037624, AI522907, AW949869, AV707151, AW950765, AW964393, AW960458, AW951280, AW963752, AW953763, AV702149, AW952868, AW952444, AW961593, AW956289, AV705115, AW952007, AV702164, AW952192, AV705891, AV705909, AW958620, AV701711, AV656271, AV702558, AV728700, AW963026, AW954372, AV709886, AV729219, AV706446, AW964435, AW958916, AV706292, AV704980, AV706539, AW949729, AV705869, AW952407, AW957105, AV702109, AW952050, AW956632, AW963713, AV705524, AV707654, AV689804, AV727170, AW956059, AV652792, AV645936, AV726156, AV702716, AV726194, AW952048, AV704833, AV725260, AW952329, AV727459, AW953689, AV725582, AW958105, AW952497, AV724996, AW958756, AW958763, AW955161, AW966314, AW952223, AW964985, AW957090, AW962003, AW950866, AV725645, AW963079, AV704626, AV703306, AW951743, AW963685, AW962508, AW949521, AW965552, AV704785, AW958118, AV726010, AV706906, AW955696, AV708069, AW958280, AV727314, AV658770,</p>



HTLIC39	623	861985	1 - 1162	15 - 1176	<p>AV703240, AV705652, AV703628, AV701875, AV707648, AV725043, AV708609, AV702869, AV705201, AV705195, AW959755, AV703458, AV688658, AV703158, AV727932, AV728965, AW964519, AV706229, AW954194, AW950006, AV705331, AV705467, AV706289, AW960821, AW950530, AV728872, AW961256, AW958088, AW963700, AV702673, AV702339, AV703090, AW955726, AW952418, AW956773, AV704567, AV706272, AV702728, AK001862, AC009330, AC083862, AC009542, AK026103, AX009343, AX009341, AX009337, AX009335, AX009345, AX009342, AX009344, AX009340, AX009339, AX009336, AX009338, AX009334, U94592, U45328, AX047063, AX047064, AR050070, A62300, A62298, A82595, A82593, Z30183, AX047062, AX040581, AX046743, and AR025466.</p> <p>BE743928, BE901784, BF527770, BF972990, BE792390, AW081174, BF314507, AI831048, AW166247, AA773631, AA648918, AA923302, AA470901, AA535051, BE675162, AA428315, AW404462, BF589314, BF058262, BF955274, AI933035, W96411, W96412, AI950956, BF195422, BE929123, AW014426, AA429382, BE720431, AI341065, T97242, D20146, AA220236, T97243, BF058263, AA897633, BE734767, AW168514, AA910288, BE092731, AA872430, AI243751, AI272807, AI499683, BF871404, BE004082, BF871406, BE092761, Y13835, AF121951, AJ251644, and AJ251645.</p>
HNECI74	624	862042	1 - 969	15 - 983	<p>AL536470, BE003559, BG255346, BE906476, BE327116, AI160211, AI401803, AI093195, AA909044, BE739863, AW139425, AI359322, AA947175, BE139159, AI040225, AI590899, AI199332, AA640032, AI343963, AA938008, BE138596, AA046040, BG230657, H98981, AA489354, BE247164, BE612820, AA938468, T93895, BE745554, AA374641, AA584427, AW970771, BF807866, AI446654, R69484, BE049049, AI916674, AI921343, BF853218, AA075868, AV730097, AV730383, AV731010, AA099236, AV732734, AA582143, AW605255, BE138956, BF000315, BF905448, BF754225, T93945, AA953018, BE151495, AI348711, BF791792, BF339923, BE620487, AW235415, AI203124, AA780963, AA894708, AI972749, R44116, AV715310, BF858888, AW901478, BE743888, BF829667, BF725761, BE439761, BF928492, AI870197, AA532419, AA634837, BF873332, AW841930, AI753488, BF310123, BE968744, AV739833, AC008753, AK024449, AC020917, AC011490, AC005881, AC006211, AC004963, AL050335, AC078899, AC004647, AC008687, AL136137, AC007151, AC003973, AC005736, AL357519, AL121653, AC010198, AC004914, AL035704, AC004799, AL159168, AL022318, AC004089, AL078604, Z84486, U82668, AL033527, Z98884, AC011514, AC008033, AC007510, AC004847, AL021918, AC015651, AC002477, AP001695, AC018758, AC018644, AL023575, AL109654, AL136526, AC009756, AC005015, U95742, Z82244, AC006511, AP000348, AL022476, AL139396, Z82178, AC004656, AC007216, AC008569, AF131215,</p>

HCRNU23	625	862179	1 - 2324	15 - 2338	AC005288, AC073184, AC005940, AL355337, AC005060, AC004929, X77738, J03071, AL160175, AL442166, U89335, AL162293, AC018662, AL163284, AL136179, AC002487, AB023049, AC005566, AL020995, AC020955, AF314058, AC004953, AC004125, AC007344, AC011479, AC004051, AL049780, AP000030, AB001523, AC007536, AL031984, AP001711, AC008080, AC005620, AC020904, Z98946, AL031775, AC005000, AC005011, AP000338, AC011464, AL096791, AL138743, AJ003147, AC020552, AC004263, AL133517, AC005520, AC005082, AL080243, AP001688, AC004703, AL160412, AL137100, AC008543, AC005207, AP000688, AL450224, AL022163, AC005783, AC004965, AC005829, AL161731, AC012067, AP000216, AC002347, AC004971, AC006530, AC016995, AC009362, AC026122, Z99570, AC005071, AL034343, AC005488, AC005993, AP001610, AC008745, AL158141, AF195953, AC010412, Z93016, AL138733, AL133448, AC018755, AL031311, U91321, AL160231, AC002350, AC004033, AP001753, AL034549, AL021397, AF190465, AC006452, AC073898, AL137224, AL121891, AC022150, AC008760, AC004887, AC011450, AC011451, AL136087, AL137039, AC005740, AC003049, AC007461, AL009172, AC006538, AF111168, Z85987, and AC011497.
					BG028883, AW968598, AI356895, AI658664, BF514897, AI478203, AW611783, BE217946, AI795923, AI668807, BF196102, AW967773, BF436879, AA768899, AA847849, AI139330, BE220879, AW452053, BE645036, BF509597, AA252471, AI640819, AI564100, BF515994, BE677776, AI076847, AI749748, AA465270, AW614077, AI253083, BE812744, AA456392, AI268480, AA741570, BE934742, AA805944, BE139537, AA455923, AA861028, AW576288, AI167589, AA742295, BE671268, AI652754, AA465157, AI022306, AW008697, AA026333, AI473203, AA026332, AI452883, AI560649, AA252907, AI400078, AA194138, BE262718, BE869050, AA743503, AA905237, AI468598, and AI423541.
HCM5K41	626	862374	1 - 550	15 - 564	AA719296, and AA758153.
HEEAF67	627	862392	1 - 1310	15 - 1324	AL526528, AL521295, AL520535, AL526867, AL532967, BF966843, AL525396, AV727476, AW956422, AW384798, AW192348, BE674240, AI803011, AI973084, AI675809, AV651502, AW118839, AI671022, BG104167, AI935787, AU146133, BE535837, AW938624, AI831233, BE645619, BE504265, AA046886, BE504248, BF196728, AW466913, AA936951, AA046979, AW589954, AV727676, AA029400, AW340759, AW236130, AW665544, AI264581, AI418623, AA150960, AW296225, W44759, AI093394, BF446143, AI302073, AW088730, AU146787, AI435580, N70304, H39508, AU150654, AI800707, AI191597, AI242558, AA031539, AW589926, AI650824, W73928, AA421100, AI459694, W79047, AA226372, AI564140, BF477497, AW235148, AA243847, AW265034, AI273243, D59998, AA226593, AA084054, W04250, H54170, BF115394, BE044190, AA421099, AV294446, AW995404, AA422134, AI433141,

					AI276055, AI097360, AA496314, AA233111, AW663063, H06122, F32723, AI814125, AI971370, AI168830, H28027, H78541, AA652326, AI150958, AI797634, AW614139, AW305179, AA084053, R24127, AW601638, AW236726, BE908703, AI302409, AI298574, AI969750, AI907561, AW612139, AI077484, W38676, AW875716, BE044224, H77423, T50069, BF476540, BE561581, R24074, D60653, AA770396, AA302953, AW384825, AA226401, AA340545, AA151050, BE545123, R31691, AA122285, H79028, AA297279, AW614495, D60652, AA689289, AA629153, AA026139, H54014, T50005, AW589213, R15482, H05830, BF966894, AA031538, BF766055, AA938031, R31733, BE076193, AA311414, AW296783, AA033515, AW411263, BF695131, AA081773, AI696661, AA766234, C75208, AI826552, AA913310, AW383613, AW383609, AW383535, BF932613, AL526582, AK021925, AK000480, and AK022780.
HWAFO22	628	862394	1 - 1612	15 - 1626	BE313732, BE514284, BE313394, BF312398, AI183639, AA411552, BF203718, BE870754, BE799743, BE312575, H29130, AW732755, AA868160, R19598, AA021220, AW408624, R59798, R14349, AL530288, R84324, BE561531, T48680, Z42920, BF207404, AW956949, AW977159, AW501357, F11367, R54256, AA730224, BF513891, AA159907, AI986302, BF764015, BF343885, and AB029023.
HCECR08	629	862433	1 - 1069	15 - 1083	AW193511, BG122671, BF68935, AW243892, BE501969, BF196881, AW513114, AI671129, BF674587, AI803180, AA703257, BF026064, AV705114, AU157517, AA481582, BF984049, AA902314, N35074, AI147921, AA677858, AI378540, AA969662, AI147803, R17947, BE788301, AI890658, AA074473, BF082480, AV726891, AA598983, AA861833, N40526, AI673650, N42977, BE700216, BE547281, AI948609, AA806101, AI620761, BE700267, D58438, N43814, AA921876, BE891608, H03027, AA948704, AI823850, AW471147, AI948617, T30997, N40566, AI572240, AW577786, BF149171, AW978253, AA559334, BF477795, BG109553, N46607, R32001, AA630587, BG165450, AI219944, AA327638, T30989, AI678315, AI702921, Z40405, AW962738, AV728223, BF846083, BE700006, AB021179, and AK023624.
HDPCX59	630	862442	1 - 1803	15 - 1817	AL520065, AL520064, BG249428, BE869699, AA522435, BE257308, AW809407, AW968474, BG253524, BE267183, AI583193, BE548020, AI580066, AA425038, AA602386, AW027266, AA535913, AI201750, AA495955, AI140976, AI400417, AI769557, AI076831, BG230609, BF029884, AI131500, AI810252, AA459496, AI674407, AI762755, AW003027, AW027517, AW305023, AI686492, BF001486, AW513839, AI147015, AW170527, AW512793, AA459267, BF476313, AI276539, AI653361, AI208079, AI292269, W40356, AA599024, AI027947, AW292543, AA733190, AI659802, AI346823, AI767262, AA932457, AA514642, AI367819, AI149913, AI038298, AI400960, W87475, AI350089, W87570, AA678680, BE737436, AA770540, AV703226, AI049656, AA019475, AI804757, AI620623, AW007575, AI346300, AA136872, AI524491, BF831374, R91747, N93865, AA040672, AI264070, AA040574, AI829046, AI446012,

AA447953, AA040302, AW590732, AA682598, N63821, BF796049, BF727423, H42039, AA678959, N55213, BE904397, AI366834, AI798080, BE093371, T70289, BF328267, AA040378, AA600308, BF664472, BF817648, BE043311, BF831381, BF940613, N94179, H78080, AI863973, AA218872, AA282766, AI763360, AA284920, AA873695, AI476005, AI440259, AI242375, R44736, AA253134, BF939402, R92174, BE855969, T80864, AI371441, BE736064, R11452, AI942253, H54410, Z24993, BE390360, AI083613, AA730984, AI185558, AI092139, AI381228, AW591851, AA281036, AW592289, H42080, R19200, AI423940, H89831, AA019122, AA039867, BF901970, H90682, H78081, AA917326, AI905682, AW247089, AA013169, H85966, AA127244, AA019325, AI241891, AA019123, N77272, AI568308, AA987371, BE539363, BE783035, AA342636, H54496, AI694855, AI699762, AI434194, R19935, AI539401, BE535300, R73243, AI638770, AI656046, H25903, AA911247, R29655, H86674, AA778262, AA136802, AA44885, AA883718, AI016488, AI133070, BF833872, BF817418, AI538564, AI514867, BE964767, AI514701, BF970652, BF725644, AI513743, BF921092, BF751355, AI514721, AW131999, AI514357, BF812961, AA641818, AI241923, AI514473, BE965707, AI863382, AI432030, AI564719, AI627988, AI515089, AW167021, AW152182, AI889376, AI120853, AI433157, AI702073, AI633125, AI537677, AI446606, AW238691, AI513631, AI366900, AI921248, AI513553, BE910373, AI045500, AI683173, AI698391, AI046595, AW084425, AI868931, AW004886, AI670009, BF814527, AI889189, AI612852, AI682971, AI513947, AI312542, AW083778, AI624293, AI513977, AV652443, AI917963, BF812938, AI521103, AI620003, AI247293, BE843239, AA502794, AI669609, BF814761, N33175, AI583065, AI521560, AI110282, AF118070, I89947, AR038854, I48978, AF285167, AI8788, AL080159, A65341, AF061981, AL080148, A77033, A77035, AF090901, AK000636, I33392, Z82022, A08916, A08910, AI8777, A08909, Y14314, AK026550, A08908, AL162003, AK000250, AK025517, AL050393, AL137480, A21103, AK026408, AL162083, A08913, AL122100, AL137479, AL389935, AL110218, AX026824, AX026823, A58524, A58523, E05822, AL353957, AF130105, AL050155, X81464, AL122110, AL110280, AL137478, AF087943, AL137271, AL137648, AL050149, AK025254, AL137488, AK027096, AK026744, AL050138, AK026600, AK026532, AB050410, AJ299431, AK025632, AL353956, U35846, AL137463, I48979, AK026533, I89931, AK000418, AK026045, AX040974, AF254119, AF287051, AK026462, AR087170, AL359941, AL117416, AB050431, AB047904, A08912, U78525, AF061573, AL137533, AF130104, AL050277, AK026784, AF130055, AB041801, AL137459, AF183393, AK027160, AL137529, AL137550, AB024524, I09499, AF177401, AL389982, AF000145, AF119337, AL133067, L19437, AJ000937, AL133640, AF143723, AK026959, AF111849, AF061795, AF090903, AF151685, A45787, AL133665, AJ003118, I68732,					
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					AF314091, AF067790, AL389939, S36676, AK025084, A93350, AX010492, AL137476, AK024594, Y11587, AL133606, U80742, AL050366, AF116631, X83508, X82434, AL049283, AL389983, AB048919, AB047941, AL359583, AF119909, AK026746, AK025435, AF260566, AK000690, AF030513, E02221, AK026593, AF026816, I89934, AR020905, AF113019, AF119899, AL049938, AF119865, AK024538, AK026626, AF162270, AK025209, AK026613, AK026950, AL080156, AL117440, AL353940, AF106862, E12747, AL133113, AF130099, AR083266, AK024992, AK026480, X80340, AF031147, AL049452, AL133016, AL137292, AK000718, AF155148, AK026865, AK025092, AF094850, AF130066, U35146, A23630, AL137294, AL122121, AJ012755, AL162002, AL117648, E03348, AL080074, L13297, AB048953, AK026057, AF119878, AF177336, A49139, AK027146, AL442082, AK025465, AF116682, AK000450, AK026534, AK027116, AF113689, AF118094, U67958, AF217966, AF225424, AF185576, L30117, AF116654, AF159615, AK027164, AL117460, AF116646, U96683, AL050116, AL023657, AB007812, AF032666, X98834, AF230496, Y10080, AK026542, AK026528, U95114, AL110196, AB033881, AK026583, AF217987, AF079763, AL137574, AK025708, AF146568, AI2297, AL117435, AF113013, D83032, AL133560, AF111112, AF271350, AK027136, AF100931, X87582, AB050510, AF132676, AB050534, AF130100, AF061836, AK026885, AK025414, AX045627, AK027204, and AF153205.
HBCAY76	631	862450	1 - 1873	15 - 1887	AL527762, AL527763, BG033859, BF569227, BF527195, BF570204, BF337668, AW962021, AI076793, AI972891, BE019444, BF110354, AI862125, BE549951, AI565789, BE208014, W76105, AI361692, BG149697, BE328157, W72591, AI369826, H79605, AW770937, AI458113, BF344885, AI565656, BG056175, W03277, AA112478, N69449, AW370951, AW370945, AW370952, AW014942, AW370931, H71720, AW370953, R91331, AA773410, AW578714, T34992, AA417749, AW370939, AW014279, AW370937, AA324400, R91290, AA577459, AI675851, AI474427, AI420259, BF593346, H79606, H72285, T23807, AA322599, AI609562, R45437, BE165545, AA236335, H81150, AI696353, AI682500, H56230, AI695166, AA112477, AW370993, AA773411, AI693959, BE698067, AI146575, D19780, AA236241, AW629407, BE165454, AI678074, BE150486, AW084416, AW606005, BE165443, AA632941, and BE150489.
HPJAV04	632	862479	1 - 2380	15 - 2394	AL513848, AL520781, AL520780, AL530383, AL513847, BF529697, AI904904, AW958288, BE260582, BF797027, BE261497, BF306022, BE313588, BG250829, BE378911, BE382450, BE260404, BF310361, BF513467, AA007295, AI955724, AI498159, BE260601, AW849071, AI125267, BE296727, AA004279, BE313057, AW376519, AW578362, AI093868, AI819782, AI003796, AL119155, AI911484, BE645986, BF667093, AI361149, AI904872, AW848721, AA742694, AI129352,

	633	862567	1 - 752	15 - 766	<p>AI347830, AW663398, AI955715, AW732760, AA029264, BG032699, AI056716, AI126005, AA310760, AA424646, AW376520, AI399788, AW867428, BF568362, BE207402, AW848185, AA781885, AW151195, AA418532, AA149405, AW867425, AA418417, AW192476, H51842, H63691, N40324, AI215074, AA504823, AI248828, AW848785, BF871193, W24012, AI082563, AW848988, AI143490, AA614846, BG170130, BF926880, BG152460, H63964, BF569139, AA029858, AA149291, AI914951, AI216882, R50712, AW752603, AA378303, AW752598, R50246, AA424592, AI041827, BF365408, AA928034, AA504107, AA641116, T99235, AI653926, AI868079, T99279, AI870049, AA301778, AA889413, AI192418, BE774973, AA614241, AW954384, AI962613, AA375492, AA576569, R30751, R00794, BF970689, AW945462, AU136940, H57539, BE168863, and AK001957.</p> <p>BF526942, BF034330, BE906856, BG117306, BE871642, BF036429, BE568321, BE729985, BF035689, AW955111, BE271782, BE621432, BF977502, X84712, BF826293, H02682, BE958344, AW405966, R22543, AA477230, AA448786, AV703538, BG250080, BE156569, AW579884, BF695706, BF698225, AW392393, AA186733, BF916201, BF909586, BF695587, AV764128, BF742334, BF742389, H29948, AW794624, R70413, AA311766, AA587630, BF512422, AV763358, AA236039, BE878646, BF813006, AW798114, AA327923, BE785222, BF530141, AF126023, AF126024, M21954, AX018983, AR071323, M21955, AR071324, A38214, I56772, I95540, I58322, I58323, AX031159, AX001082, K02082, M16637, I02355, M20006, M16994, M73496, A48775, M16636, AR091557, and AR091558.</p>
HNFMA59	634	862665	1 - 2990	15 - 3004	<p>AU118050, AL515218, AU124650, AI804495, AL515217, BG254700, BF793291, AU139800, BF221530, BE614349, AU137694, BF793595, AI435930, BG171769, BG120678, AI635319, AI927302, BG036151, BE780429, BE613637, BE883539, BE391223, BE783242, AI802380, BE882107, BE408532, BE222029, BF035253, BF670327, BG026722, AW189345, BG176691, BF690809, BF701218, BE384185, AW138746, AA306135, AW571851, AV758758, AL036570, AW058381, AI859728, BF832574, BF832584, AW410233, AI755119, AW075704, AA418590, BF981254, BE780049, AI984163, AU151135, BF114722, AI961692, AA452161, BE779478, AU149020, AA418574, BE388275, BF103811, AA206679, AI004693, AU153522, AI351372, AW500112, AW261890, AW410234, AW136841, AI634166, AI631474, AA827216, AU128765, AA452392, AW408121, AW500362, BE966378, AU153938, BE349597, AI671386, BE389430, AI380332, AI739557, BE391353, BG248885, AL047192, AI378011, BF796410, AI094228, AA621081, AA993180, W39674, AI244135, AA447738, AA189112, AA707268, AA639867, AI568172, AA448963, BF812945, W27396, AW139700, AW341254, AU156536, AI610449, AA680213, AV692709, AA074826, BF379914, AA495911, AA926753, AW369696, AA455981, T34089, H41985,</p>

					AW902483, AI375902, T65313, AI290502, W27884, W44815, AI932816, AW902476, F09884, AA112140, AA903638, BF000181, AA495909, AW902481, AW902478, AW955309, BE644837, AW902479, AW953636, AI638081, AW770216, AW902461, AA343345, D55193, BF930789, R24937, AW902455, AW235766, AW006582, AW902734, H66548, BF094361, AW902736, AW902737, BF239823, AW902730, T32692, R52606, BF379905, AA295536, AW902720, AI522293, AW902469, AA453670, AW902729, AI581037, AA215671, AW504587, F06886, BF205456, AW902703, F06870, AA354203, F12257, BF379886, AA312352, AW902732, W23553, C17550, AA226892, AA449690, AI694910, AW467583, AA732285, BE618002, AW902470, BG252934, BF001525, AA215779, F06869, AA495910, AI872765, T66073, R52549, D78825, AA188898, AW063992, R45200, BF957940, C03668, H66132, AI829792, AV738729, N55752, AW902721, AU138715, AW015422, AW198067, AA355665, BE929397, AA235264, AI910343, T10458, AA227327, AA618016, N53511, AA809990, AL121142, BE720589, BE939651, AI093996, AA358989, T10787, AA090092, BF904404, BF376408, AI904692, AU148473, AW385823, BF326100, BF085286, AW770803, AV731531, BF741199, AI982808, N44960, AJ132637, AF090430, AF070656, AK001259, AL162272, AJ295622, AK022930, AC010518, AJ295621, AP000535, AP000536, AJ295618, AJ295620, and AJ295619.
HNTAI35	635	862671	1 - 503	15 - 517	BE909279, BF806721, and AW887675.
HCE3X63	636	862807	1 - 2681	15 - 2695	AU116945, AW370778, AW748496, BE008566, AL120631, BE012097, BF915504, BF914539, BF915509, BF915619, BF915278, BE012058, BE012056, AI079742, AW900873, BF958427, R60049, BE012090, BE008559, BE012098, BE008567, BE012088, BE008557, BF958428, BF345710, BE008556, AW955385, BE008553, R60111, AA326354, W52864, BF915611, AA843289, AA037392, AW748453, AA584831, AI026996, F13341, T06233, BF349469, AW991423, BF886081, AI041415, T77092, AA477598, BF886817, BF953670, BE703584, BF946647, BF886490, AW991625, AA477470, AW582628, AI906119, AA349458, AI953575, AW957190, BE894127, AF234887, D87469, AB028499, AB011529, AF031573, and Z96419.
HCE2K01	637	862851	1 - 1565	15 - 1579	BF348587, BF317233, BF347922, BE262234, AI886854, AI564810, AI571772, BE260801, BF947408, AA620986, BF348199, AL118922, AW964855, W56893, AI948418, BF590647, AA682932, AI197966, BE832972, H38493, R88493, AW139827, AA984456, AI816315, AW160990, H38543, H30751, H49766, AA604007, BE383259, R88620, AA326352, AA324912, AA326240, BF959580, BF957744, H38473, AA323285, AI565716, AI027311, AI369823, H51158, R89653, AW964663, BF928045, BF445694, AW904314, BF957741, AW896684, AW896682, AW904318, AW875497, BF758599, AW896689, R85211, AW888897, BE702414, AI468058, R88628, R88824, H51120, BF206086, AW904306, AW896674, BF967275, H41534, AA622175, BF947811,

HJPCG05	638	862913	1 - 1320	15 - 1334	<p>AB023167, AF190461, and AF044201.</p> <p>BE740695, BE739906, BE899124, BE742745, BE685920, BF971897, BF684948, BE336652, BE747520, BE925550, AI733012, AI492192, BE207602, AW275042, AA954656, AW139807, AI791409, AW136444, AI361524, BE207644, AI762361, AI762373, AI246377, BF684146, AA306161, BF062047, BF222947, AW003832, BG028044, AA865078, AA402599, N32269, AI801286, AW151974, AI866469, AI859991, AW858522, AI440260, AW151132, AI500658, AI623941, AI567968, AI431238, AI927233, AW151136, AI539771, BE897632, AI432644, AW151131, AI537677, AI494201, BF812963, AL047611, AI804505, AI815239, AI500659, BE883591, AI866465, AI815232, AI801325, AI866691, AI500523, AI538850, AL514019, AI887775, AI582932, AI590043, AI923989, AI872423, AI284517, AI500706, AI491776, AI445237, AI289791, BF811804, AI926593, AW151138, AI889189, AI521560, BE084795, AI500662, AI285417, AI582912, AI539800, AW172723, AI284509, AI538885, AI440263, AI889168, AI866573, AI633493, AI434256, AI805769, AI434242, AI888661, AI500714, AI284513, AI804515, AI888118, AI285439, AI358271, AI436429, AI889147, AI355779, AI623736, AI381033, AI371228, AI491710, AI431307, AI440252, AI440238, AI567971, AI866786, AI860003, AI610557, AI431316, AI242736, AI539260, AI828574, AI887499, AI521596, AW151979, BF814449, AI539781, AI539707, AI702065, N25033, AI885949, AI285419, AI559957, AW089557, AL514469, AI521571, AL514951, AI469775, AI866581, AW074057, AI567953, AI815150, AI446495, AI867068, AI952433, AI225248, AI698352, AI282249, AI371229, BF527963, AL514839, AI469764, BG167830, AL513655, BE885490, BG252929, AI888317, BF81314, AW194509, BF724911, AL039287, BF527697, AI690813, AI866503, AI561170, AI554821, BG109553, AL042365, AI690946, BF814072, AW022636, AI890907, BF811802, AI925164, AI909697, AW051059, AI866458, BF815930, AI371251, AI648567, AA928539, BF811784, AA720970, AI433157, BF751299, BF812438, AI866510, AI811603, AI623302, AW058275, AI866461, AI954721, BF726183, AI923046, AI431962, AI538692, AI370623, AL047422, AL513937, AV709390, AL048403, BF968892, R41605, AI345688, AV693602, BE904652, AI656962, AL047398, AI698391, AI250646, AL514879, AI889191, BF982923, AW089844, BG029667, AW858243, BE544479, BE886728, AW163464, AI491904, AI224373, AW827289, BG113493, AI884459, BE769091, BG110517, AI371243, AI513949, AA641818, BG119547, AI890223, BG178532, AI049859, BG110384, BF811793, AI687944, AV740521, AI345415, AW129106, AI433590, BG257535, BG111916, AI802542, AL039390, BF795712, AI493559, BG111100, AI887785, BF796402, AA808175, AL036705, AI274759, AW372903, AF123757, AF123758, AF123759, AF123760, AF123761, AF125307, AF125308, AK027114, AF102578, AF113677, S63521, AL133084, AF112208, AK026927, AL137533, AF116631, AX040958, AX040974,</p>
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HOUFG48	639	863051	1 - 619	15 - 633	AL527589, BF794114, AV703898, BF131749, BF976305, BE731608, BE736480, BE889614, A1086605, BE732710, BE741473, BE614673, AA654791, BE259354, BE615687, BE890833, BE539810, BE747138, BE899259, BE732930, BE313748, BE898888, A1937040, AW027344, A1808796, BE256852, A1992050, W76599, A1401654, AA583061, AL527588, AA843815, BE745311, BG109908, BE336680, N84979, T63208, BE176971, BE176808, BE176933, AA380008, AA931892, AV686812, A1950961, H16414, BF677458, BF727273, BF726963, D30831, A1312676, AA889272, A1040841,

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HCYBG68	640	863308	1 - 2509	15 - 2523	AL530427, AU117344, AL538342, AW954347, AL119313, AW139420, AW956297, BF224071, AI912249, AI694564, AI290594, BF433146, AW963525, AI131059, AA861784, AA806177, AW965594, AI367043, W03385, AA807031, AA514623, BE613393, BE673459, AA825657, AI807033, AA836481, AA761884, N42640, AA451921, AA250792, AA410256, AI912705, AA429651, AA831314, BE218619, AI092799, AI298636, AI681278, AA774869, N67802, AI370891, AA894789, AA047263, BF836923, AA278845, AA761195, AA305260, AW368344, AW276983, AA372719, AA127225, H86483, T08808, H85974, AA251036, T73087, AA278829, AA488944, AW517624, AA418881, AA379994, R14378, BE702377, BE932283, AI204965, AU144200, AA987739, BF822710, AW857863, AA214396, AA773133, AA343388, AW206541, AI762472, AA418882, BE938832, AI140532, BE938834, BE767686, AW956545, AI002400, BE938835, BE938842, AW205025, BE938843, BE938827, C20769, H30812, AA249821, BE938833, BE938844, AI241455, AW517752, BE938837, AA406530, BE938838, AI569084, R93659, BE699387, H90092, AV709514, AI335529, BE699388, N32964, AL530428, AI279174, BE856646, AI291928, AI338925, AF112221, AK000911, and AB020678.
HD/TBD83	641	863372	1 - 591	15 - 605	BE736886, BE744656, BF875090, AA347493, BF772194, and AB002335.
HCDEG27	642	863396	1 - 430	15 - 444	AA505320, AW972479, AI419468, AI073641, BF674236, BG152620, AI471102, AW370201, and BE890552.
HBXDJ07	643	863541	1 - 1469	15 - 1483	AV718200, AV753454, H11405, R55569, N27906, H20863, N25140, AV725162, AF306459, and U27708.
HBKDA80	644	863586	1 - 663	15 - 677	BF967527, AI201607, BF530969, BF346349, AA706731, BF529454, BF793156, AI380537, BF345971, AI878845, AI879304, AA020862, AA855013, AI422239, BF338932, BF439896, AI358939, BF529160, W74452, BF575097, BF923745, AI422201, AA017448, BF969554, AA019649, AI923364, BF923742, AA725298, AI880155, H40692, M62142, AA724499, AW451024, BF345888, BE645169, BF923741, AW163815, BF347262, T31153, AA973196, AA025741, H50177, R84717, BE937930, H30752, AI498532, R87477, H51601, AI422192, AA700037, H49926, BF920220, H26405, AI865955, AI016675, H14238, M78975, BF932212, AA917485, BF926854, AA917691,

HSSDP38	645	863587	1 - 2157	15 - 2171	<p>AI419113, H85846, BF924860, BE715030, BF927277, BF935247, AA013239, BE714967, AA909921, AW183974, BF109146, BE825860, T64238, R49896, AI879282, R85145, Z42395, BF922544, BF927986, R88676, BE762881, BF337285, T09222, BE762858, AA975546, AW351521, T33821, Z20535, BE826801, BE185592, BE826989, BF967523, BE675155, D56053, BF347813, AK024521, AB033074, AF159092, and AB033921.</p> <p>BF967580, BF967599, BF526188, AI201607, BF347782, BF347262, BF346349, BF344692, BF530969, BF967523, AW377114, AI380537, AW952364, BF526255, BF969554, BF340682, AW157774, AI655912, BF528672, BF337285, AI879403, AI146748, AW204763, BF345109, BF530197, BF338932, AA706731, AW192741, BF967527, BF439896, AI674046, BF920220, BE645169, BF793156, BF529160, AW305252, BF529454, BF341160, AI580912, AI093152, AI460044, AW518907, BF431045, AA020862, W74452, AI878845, AI742079, AA782477, AW304006, AW136664, AW182997, BF923745, AW025364, AA835372, AI879662, BF528195, AI358939, BF923742, AI801946, AI422201, AI422239, BF575097, AI813356, AI336011, AA855013, AW451024, AA994673, AI498532, AI879304, AA017448, N46229, AI879683, AA725298, H43994, AI923364, AW163815, AI628011, AI277994, AW779817, BF923741, M62142, AI274904, AA019649, N62584, AW291437, BF932212, AI825784, AW090126, AW664106, AI366522, AI867321, AA021022, BF345971, AI802620, AI564495, BG055946, T09222, AI880155, AA774613, AI251820, AA025827, W27282, R84717, AI196540, H61679, F18965, AA536168, N80357, AA971702, BE715030, R99829, F28976, N36677, F24866, AI872630, N58522, R84386, AW514001, T31078, T33821, AI027412, H40692, F28382, AI579966, AI287460, H48592, F31898, AW608550, F24298, W27947, BF925436, H46851, T08543, BG055765, F25936, F20433, AA971308, AA700037, AW236878, BE714967, BF345888, AA025741, R93674, T03744, BF447454, R84387, T31153, H86297, H50177, AV726306, AI193426, F24508, R52608, F20451, AA724499, H46765, F21806, BE172761, F19090, AW895728, T30953, AA772522, R87477, AI469512, M78856, BE698989, H51601, H26405, R85676, AW381187, H84842, AW779221, AW895991, F27265, AW901702, AI492433, R88151, F35865, AI207927, T09010, AW901701, R49676, AI025838, R95717, F25563, AA013333, F19151, AI422192, AW895865, H48869, F26087, R52551, F26962, AI207933, BF924860, R35374, F17747, AA973196, BE677661, BE937930, F27211, T78639, T35800, F19034, AI244373, H49926, Z24921, BF826839, F17022, Z28454, AW079644, R88676, F23472, F26519, R49897, C04550, R50243, F27566, T67453, T64238, F23469, R18563, F20879, AI680629, Z42395, F22691, AA602822, R95716, AI016675, BF927277, BF935247, H14238, H43995, T79124, AA602753, AA603005, BF930964, T30012, R50710, F35531, AI671225, AI613030, BG059642, H30752, BF594287, BF221861, T08807, T07601, AA677640, AB033074, AF159092, AK024521, AB033921, AX047063, AF217994, S68736, AF218031, Y08991,</p>
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HSSGL44	646	863654	1 - 2942	15 - 2956	<p>Y11505, A91160, AR011880, AC068130, AP001624, TS9473, T69486, R11417, R05821, R19167, R41430, R41430, R73505, R73506, H14237, H17971, R85091, R99828, H72275, H85846, H85914, N46228, N54065, N78113, W20020, W72768, N90531, AA017447, AA019648, AA533780, AA564891, F15609, F16828, AA917485, AA917691, N55649, N56356, N89302, AA092716, F21135, Z20535, AA909921, Z28942, Z28943, Z38602, Z41957, F01473, T59417, and F00553.</p> <p>BF026630, BF525472, BF3111757, BF026375, BE315200, BE384236, BG029678, BE728846, BF027355, BF207367, BF311466, BE391121, BE385559, BG249240, BE889845, BE746346, BE384507, BF314019, BE514952, BF316610, BE387027, BF026515, BE385753, AW958716, BG034358, AW387756, AW387777, BF311701, BG166348, AW058655, AV712812, BF434690, AW387790, AW387823, AW387881, BE205929, AW387875, AW387818, AW387759, AW387863, AW387885, AI885199, AW387879, AI696938, AW387882, BE206444, AW576420, AW387835, N27479, AA457045, AA004840, AI371842, AI753132, AI243820, BE391643, AI401039, AA042937, BE208742, AI620938, N21206, AI075795, BF951267, AA827532, AW952741, AA961462, H17738, AW818342, AI138762, AI124836, AI752279, AA401155, AA456889, AI702256, R72316, AA400981, BF508433, R59036, AA043037, AI038154, AA251449, R72279, AA429858, BE392526, AA081310, N99653, AA026365, H08163, AA679413, AW502829, N71703, AA338257, R58972, AA081311, BF764044, R34391, BG152425, AW050971, AA687186, AA730076, H08262, AA251361, AA297244, AA306235, AI000974, BG149463, AA298573, AA853018, BF834450, AA853019, AA338258, R91030, AA314525, AA353768, AW263925, H17627, R48929, BF311649, BF087022, AA373441, T86041, AI906978, AA004963, AI570299, AA446166, BE260858, AW452622, AA255575, AA093014, C01841, BF087011, AA340952, AI955058, BF346375, AA026457, H49886, BF437779, AA613298, BF836633, AI932871, AW265688, BG222875, AA804187, H67064, AA610255, AA115865, AA488687, AI281689, AA586433, AW302017, AI185394, AI565084, AW089625, BE328286, AW245354, AA654482, AI446259, R67701, AW265276, AW591304, AA558404, AW382918, BE149998, AW946882, AA654778, AW962611, AA525331, AW392414, AW023111, AV759971, AA515924, BF766147, AW188742, AA429481, AI054339, BG057207, AA533054, AW511778, AA857812, BF942349, AA356376, F00533, N30016, AV758067, AI653999, AW408756, BE739933, F31951, AA862029, AA666295, AI873627, BF934628, AI254779, BF447405, AA598605, AI564675, AI039309, AI359200, T07225, AI923052, BE002964, AW272815, AL137946, F35684, AI590442, AI022312, AI365515, AK000239, AK026539, U02047, M87889, I34294, AF205210, AI224877, AJ012824, AC004790, Z70289, AC008126, AC006277, AL390014, U95739, AC008745, AL049829, AC005598, AF064861, AF003626, AC004253, AL499628,</p>
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HBODY10	647	863665	1 - 926	15 - 940	BE298619, AL742370, AL951803, F21858, AI094102, AI091054, AI374599, AA644519, F26878, F36653, AA993801, F34314, F19543, AI239603, AI039195, AI425024, AA182915, BF671086, F32505, AA970455, F25446, F26950, T11964, AA181506, and AL136295.
HDFUB58	648	863687	1 - 2091	15 - 2105	AF010244, BG026299, AV752955, BE670307, BF436052, BF038892, BE464799, BE671255, BE042892, AI866576, AW770582, AV725085, BF326818, AI557322,

					AW015347, AI799000, AI376288, BE502146, R89028, AA171608, AA970651, AW876870, AW877590, AW840350, BF361437, AW363754, AW877589, AW877588, AI802649, AW877706, AI915514, AW840419, AA402637, AA745819, AW840429, AW840358, H43394, AW937209, H47689, H71857, AW934824, R73186, H14457, AA243018, AA171767, AW840513, AI751358, BF349078, AW877627, N46833, AW341834, AI823932, AW877671, AI083608, BE070521, H71862, H47604, Z43234, H71746, AA236513, AA402673, BE504959, AW937211, AI350267, H90124, H72309, AW105147, BF792271, AI174661, H90928, AW270454, AI751357, H90033, F02687, AA247903, AI239443, H43340, BE070715, BG121536, AI982804, AA376476, H08573, H71070, C00687, AA376351, BE002413, AC008952, AC008838, and AK025909.
HSMBE70	649	863709	1 - 898	15 - 912	AI090012, AL048304, BE538120, BF448592, BE464841, AA040831, AI982813, AA043447, AA502368, AI344358, BE697269, AI344536, BF851861, AA043448, AA040167, AW183007, AW674670, AI570653, AI864266, H27959, AA564261, H27958, W86977, AW050696, AI302319, AW197920, AI624520, BE162330, AA247896, AI472445, and BE536754.
HEPAA94	650	863718	1 - 964	15 - 978	BE177934, BE178118, BG168943, AW952560, BE467261, AW069580, AI890128, AW273443, BE502256, AI744746, AI379922, AI032260, AI522079, AI279840, AA281064, AI879924, AI217814, T66144, H11614, AW194179, R55295, AI085109, R55392, AA335275, N99235, AA257070, F09767, AA257163, AW972958, AW206093, AW293807, BF769935, AI669914, C02264, AA988919, AA357316, AI699614, BE936621, R47297, BF037710, AW881403, R08134, R08135, T97734, R24628, R41750, R46652, R41750, R46652, R68465, R81013, H00897, H13892, H21049, H26608, H26653, R93132, R95021, H89625, H94620, H97545, N21102, N25341, N25577, N27942, N31115, N31456, N33414, N40704, N41557, N42388, N57163, N70491, N71098, N79839, N80214, N98397, W04860, W05841, W07170, W33185, W37251, W37341, W37342, W38453, W38503, W40194, W42493, W42643, W46428, W46463, W52071, W67206, W67350, W69599, W99307, W99396, AA029338, AA029339, AA040361, AA040360, AA071515, AA082292, AA112326, AA113135, AA131702, AA131708, AA131613, AA131609, AA181802, AA186552, AA192745, AA192818, AA484255, AA488862, AA488939, AA507933, AA515025, AA522553, AA523060, AA564095, AA564096, H89479, AA627461, AA639412, AA576846, AA669117, AA760790, AA766125, AA826436, AA825268, AA865450, AA873853, AA876949, AA903215, AA917384, AA928523, AA928935, AA935187, AA935336, AA969528, AA972750, AA973237, AA995522, C01348, R29421, AA435599, AA443738, AA476787, AA716513, AA719184, AA723202, AA724010, AA724888, AA724928, AA782195, AA846351, AA772446, AA860990, AA860997, AA860073, AA890241, AA890374, AA973207, AI026162, AI038801, AI050951, AI057524, AI074987, AI086726, AI087199, T25768, T25871, AI245494,

HHECU86	651	863734	1 - 725	15 - 739	AI302436, AI302531, AI306429, AI309295, AI350164, and AI360748. BG177485, BG177377, AW068821, BF340963, BE735271, BE734125, AW629902, BF795298, AI179850, BG024965, AA347950, BF885987, AL040673, BF887193, BF886931, and AF132937.
HBXGQ49	652	863848	1 - 2025	15 - 2039	AI939620, AI480056, AW300620, AW300615, AI589129, BF920454, BE386438, AI911546, BE386547, AW961851, AI361251, AV726263, AI498527, AW901919, AV725146, H41544, BE967591, AA326679, AI422476, AA348503, AA912288, and AI423129.
HCECL08	653	863887	1 - 1420	15 - 1434	AI800075, AI686505, AV726613, AW023374, AA418208, H97489, AA620395, AA418073, AW027850, N67776, AI168759, N36146, AA700811, AA401879, N28007, AW952793, AA012999, AW904436, H99095, AI015805, H82563, H60753, R87427, AA688368, BE702596, H59689, R85022, AI582759, N35665, AA205528, W03403, H83667, H83666, AA322820, AW072108, H60754, R07653, AA339201, R07706, N26551, H59688, N69337, N88280, H84836, BE744699, AA640177, AA221012, AA094140, AB025904, AL138795, and AL138795.
HUCOT09	654	863914	1 - 3282	15 - 3296	AL528723, AU123584, BE743581, BF312700, BE741050, BE795735, AU122587, BE743660, BE741283, BE856746, BE742232, BG254329, BE886473, BE792958, AV656238, BF309893, BE313618, BG119782, BF038125, BG105929, BE908612, BF966056, BF037974, BE740993, BE868776, BF038125, BE883039, BE867958, BE886582, BG179301, AI135110, BE268862, BF983158, BE311448, BF825757, BE514967, AI138612, AI084786, BE536600, BG181025, BE255081, BF828617, AA122281, AI857642, BF828799, BF826814, BF037337, BE300994, AI814439, BF308933, AA576976, BE255064, BE314324, AW953203, BF240560, AW007758, AA291860, N36325, BE887297, AA614328, AA758326, AA398266, AA705821, AI879205, AW029132, AU148132, BE810276, BE179970, AI131062, BE259170, AI222818, BE169650, AI935132, BE392210, AW070541, AI624257, AI694240, BG236028, AW194445, AW103797, AA196651, BF725300, BF690320, AW517068, AU146225, AI582213, AI435143, AI360344, AI394500, AI688349, AI582376, AI690569, BF795416, BF111964, N29984, AI860428, BE292928, AI160318, BE179846, AW194430, AW264570, H58349, AI950515, AA410748, AI952259, AI754189, AI813910, N32745, AI500411, AA434488, AW008344, AA643227, BE312315, AI879588, BF087137, AI869669, AI351136, AI497687, AA991796, BF438467, AI299383, W80788, AW027186, AW130354, AA350146, AA434392, AI948642, AA428653, AA565934, AW733015, N26961, AA878173, AA477509, AA477094, AA432338, BE746827, BE838132, AI057169, AI372449, H07102, BF911970, AA213414, AA731192, BF087761, BE675270, AA765797, AA804972, BF088377, AW780293, AI016933, T33461, AA399437, AW591234, D12098, F24523, H70959, AI868018, R44093, H73091, BE838094,

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HYBAF24	655	863934	1 - 649	15 - 663	<p>BE793846, BE513607, BE790851, BE795342, BF689981, BE730258, BE735825, BE903214, BE265249, BE267419, BE740614, BE742662, AW247577, BE727175, BF026122, BF732877, AW247732, AA148228, AI751446, AW008969, BE798194, AW069303, AI394269, AI797289, AA316485, AI750270, BF026858, AA996071, C05230, H41429, AA159378, BE793469, AI278793, BE958392, R62171, AW263105, AA248589, AA613553, AW009897, AA960959, BE799132, AI026967, N30347, AA158337, AA131464, BE267114, Z40848, Z36872, T36130, T34155, R81681, BF880011, N93270, AI541453, AI383153, AA837473, BE814767, D56451, T69473, D56220, BF879857, BE903639, BE263036, W33202, C03927, AI783931, BF879695, AI560479, BE393241, BG170115, BF125876, AK024765, AF197937, AF116692, and AL136116.</p>
HEMET46	656	863977	1 - 2569	15 - 2583	<p>AW953081, AW070211, AA464807, AW391174, AI333225, AA770661, AA081335, BE219696, AW665724, AA431894, AW582203, BF104732, AI338446, AA426155, AA486620, AA426230, W31695, AI400254, AA186695, AA347390, AA426573, AI051414, AW771545, AA425620, AI301726, W04527, AA918383, AA487066, N36136, AI374976, N66734, H88205, AA297537, H87975, AI631919, AA188323, BE167291, BE167284, BE677286, BF821835, N44141, H88157, AI206014, AV749192, AA297524, AA248250, H88204, AW681211, AW438654, AV748234, AA090513, AW772577, AA090419, AX035213, AF205940, AK026875, AB034695, and AL133118.</p>
HFXJM86	657	863982	1 - 1853	15 - 1867	<p>AL138080, AL138081, BG056111, AW117532, BF724275, AI885223, AW051808, AI332809, AI564820, N63569, AW207494, AI866785, AW148811, AI954565, AI199326, AI199105, N38888, AI243422, H09138, AW381536, AI986175, AI991904, F31192, Z18300, Z25110, Z28916, AW381528, Z41646, AI954371, N38887, AI033629,</p>



						AW381480, F25740, Z28784, N94825, F00372, AW380848, F16581, AW381481, AA197180, AW104762, BF887537, AB042554, AB032999, and AC006059.
HDTL37	658	864023	1 - 1810	15 - 1824		AL538001, AL516063, AL538254, AI090660, BF981796, BG120625, AV700619, BE392454, AI523238, N21497, N21485, BF939496, BE392044, AV719776, BG057702, AI817039, BF204137, AU155240, BE071563, AU160629, BF184627, BE907983, AA305918, BF816141, AA507408, AW937833, W93873, BE867586, AW151922, AW182553, AI633232, AW003628, AI684339, AU159253, AI560885, AI687139, AW082805, AA082822, AI817047, BE070285, BF114838, AW518577, AI688212, AI190333, BE071553, AA582245, AW054948, BE799775, AI589693, AV753173, AW804877, AI674037, AU159189, AA977342, AA702518, AI751234, AI422198, AA93227, AI214547, AI288967, BF357795, AI355053, BE670446, N26211, AI141813, AI497774, AV752825, AI493523, AW008389, AA436893, AA055994, AI309911, AA442652, W90296, AI827121, AI333029, AW248575, AU153812, AI277239, AI084179, AI318056, AI291951, AV743293, AI093971, BG031747, AW392743, AI469852, AA687101, W19435, BE294439, BE350317, R96731, AA430076, AI039407, AA861287, BE221585, AA813581, AI097602, AA709151, AI239436, AA100154, AI624059, AA559003, AA749286, AV742588, AA976571, AI688752, AW364723, AI146959, N68656, AI363475, AI393760, AI494450, N92780, AW087854, AA524574, AI241783, AA053089, AI922515, H02857, AA125784, H67701, BE086760, AI080552, AI083936, AA182728, AA832054, AI418179, D82393, AA865309, AI262535, H13252, AI351565, H03752, AV737697, AW079031, F20912, AI695464, BE719024, AW473709, AA211150, AA810420, BF241046, AA976994, AW577541, BG258102, H69233, AI493332, AI031856, AI085542, AA188920, N57926, AA804591, AW468051, BE795791, R56688, BE729605, R42366, AI290992, AW248055, H79674, H78016, AA883326, AA477753, AA927225, BE246085, H78017, AA621934, AI280314, AI277249, AI682946, AA055906, R68511, T34630, AA810015, AA010257, AI689190, AW517928, R68216, AA931301, AV657931, AA053600, W90637, C75361, W94144, AA746271, R63070, AA836198, AW392699, H91302, AA831111, AI825687, H79675, R96732, AA449217, T34205, BE174772, BF975809, T34046, AW992973, D82307, AI955944, AA404696, H91397, U46255, AA010426, AI659067, BE074494, AW751221, H69232, BF931397, AW273912, BF934990, AA328191, BF352198, AA125933, AL538255, AA676384, AI567602, AA291489, BE644796, AI696447, BF347548, AV658719, AI347465, AI672808, AA477859, AW875104, BE929017, AV658343, AW938344, BE089142, BG119159, AA366646, T11067, N91674, BE898924, D19818, BE085566, T05608, BF438373, AA443715, BE074860, AA182632, AA551195, AW383520, BE670867, AA926640, AI913752, AJ238374, AJ238375, AJ238379, AK023927, AK001316, AJ238376, AF161479, AL109840, AC010102, AJ238741, AJ238743, AJ238742, AF136276,

HBIFE32	659	864093	1 - 854	15 - 868	AF136278, AA883083, and T18566. BE791591, BG180876, AL040387, BF035302, A288666, AU129230, AI658486, W02852, AU129185, AW136080, AU119473, BF241478, AI636247, AI609935, AI798914, AI023382, AB037850, AK022906, AK000668, and AL117434.
HSLDY71	660	864179	1 - 822	15 - 836	AL518393, AL522644, AW953904, BG180896, BE221763, AI693243, BE220100, BE885876, AI085705, AI554530, AI222170, AI417191, AI858625, AW363027, AW753943, AL525061, H64836, BF980553, H64835, AA372615, F12236, AA864323, BF239098, BF185076, AL518394, T66397, BF185001, AA705267, AI684882, AL045195, BE795832, AK025968, and AB041610.
HULFN21	661	864272	1 - 721	15 - 735	BG176952, BG119766, BE906508, BF315405, BF796929, AI360274, AI037855, AW962725, AW007497, AW082995, AV755472, BF594004, AW161413, AW156931, BG166964, N21474, AI554100, AI214257, AI478780, AI222821, AI653431, BG248818, AW084500, AI453168, AI806688, W63672, BG028373, AI434287, BE858543, AI127538, AA649068, AA773025, BE904459, BE858816, AA314274, AA724824, AI8000951, BE407567, AA581734, AW162184, AI148356, AI685414, AI023940, H50099, AI831484, AA992634, AI279472, AI364371, AA027848, AA488943, AA488865, AA826437, W60232, H41639, W74733, AI337789, AA936903, N35097, AA469467, AA044621, AI141455, AI123011, AI828794, AA854512, AI150124, AA835872, AI718955, N20569, R77458, W69967, AA976010, AA922961, N91253, AA568890, AI221519, H39206, AA128350, AA879143, AA706573, AA027881, AA593835, AA815338, AA613060, AA286860, BF683095, F36916, AW005313, AI149210, AI149209, AI377018, N24682, N36660, AA467797, AA314917, F22231, W61084, N28955, AA897642, AA055651, AA401043, F28697, AA916716, W35170, AA400991, AI459613, AI264839, BF245948, H91964, AI183792, W70117, AW951971, F32049, BE781599, F21332, W19907, W60231, R77554, AA455025, AW474305, AA873439, H03117, AA483989, H50142, AA716117, AA978038, AW182103, H40085, F30898, W74540, AA128474, AW511963, AA335268, AW962727, F23477, N92608, AA906647, F29182, AW879581, AA455832, F29976, F26793, BF732750, F26857, AA300070, AA602800, R48819, AA369626, R48820, AA742758, AI719367, W39126, F32886, AA523612, AI014895, AA300069, AW418783, AI825594, N43840, BF223245, AI199049, AA937249, W20394, F37930, F28674, BE163986, AV738486, AA888678, AA055707, AA921866, D19857, BE840678, BE840480, AW268072, AI873613, AI343037, AI345397, AW301300, AW075207, BE138658, BE138712, AI313320, AI344928, AI366974, AI345416, AI345612, AI345111, AI349967, AI307503, AI349028, AI309431, AI310575, AW074993, AW071380, AI345114, AI345615, AI312152, AI345735, AI307543, AI308032, AI345224, AW072485, AI307494, AW303089, AI307520, AV743962, AW071362, AI307526, AW302965, AW072484, AV744136, AI336654, AI307507, AI336503, AI334913, AV738991,

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HCRPE50	662	864273	1 - 678	15 - 692	<p>AK026452, AL137533, AL353940, AF016271, AL137658, and AL359620.</p> <p>BE906508, BG176952, BG119766, BF315405, BF796929, N21474, AW962725, AW082995, AV755472, BF594004, AL360274, AI037855, AW156931, AI554100, AW007497, AI478780, AI653431, AI453168, AW084500, BG180668, W63672, AW161413, AI434287, BE858543, AI214257, AA649068, AI222821, BE858816, BE904459, BG248818, AA581734, AI148356, AI023940, BE407567, AI685414, AI831484, H50099, BG028373, AI127538, AI279472, AI364371, AA773025, AA488943, AA488865, AW162184, AI123011, AA826437, AA724824, AA854512, AI800951, AA314274, W74733, H41639, AA936903, AA469467, AA992634, AA027848, N35097, AA044621, AI141455, AA835872, AI718955, N20569, R77458, AA815338, AA976010, W60232, AA055651, AI337789, AA568890, AI221519, H39206, AA706573, AA593835, AI828794, AI150124, AA613060, AA314917, AA149209, W61084, F36916, AW005313, AA149210, AA128350, AA467797, F22231, AA027881, AA897642, F28697, AA922961, AA286860, W69967, AI377018, N24682, N28955, AI183792, AA879143, H91964, F32049, W19907, AA401043, R77554, N91253, AA916716, N36660, W35170, AA455025, AW951971, AA400991, AI459613, AW474305, AI264839, AA873439, BE781599, AA483989, H50142, AA978038, F30898, BF245948, W70117, N92608, H40085, F21332, AW182103, W74540, BF683095, H03117, W60231, AW879581, AA335268, AW962727, AA128474, F29182, AA602800, AW511963, F29976, R48819, F26857, F26793, BF732750, AA300070, AA906647, AA716117, AA455832, R48820, AA742758, AI719367, AA369626, W39126, F23477, AA523612, AI014895, AW418783, AA300069, AI825594, F28674, N43840, BF223245, F32886, AI199049, AA937249, W20394, F37930, BE163986, AA886678, AA921866, AA055707, AV738486, D19857, AI873613, BE840678, BE840480, BG029053, BF726237, BF968910, BE785868, AW151136, AW082594, BE536058, BG164371, BF812933, BF341801, BE048071, BG120816, BE047737, AL041150, BF814420, BG249582, AI269862, BF816037, BF970449, BE047852, BF338723, BE876033, AW827276, AI364788, BF038131, BG256592, BE880182, BF822127, BE874133, AW673679, AA225339, AV727776, AW071417, BE880674, AA715307, BF924882, BF970768, AI580290, AL036548, BE965060, AI859464, AI805688, AW772685, BE879516, BG030364, AW827289, BF032768, BF339322, BF032910, BF814357, BE047952, BG034550, AI288305, BE968711, AI597738, BE246734, BG031815, BE964876, BG179993, BG026428, BG036846, BF968541, BG032208, AI698401, BE910373, AI627880, AL045500, BE622183, AI284131, BE887488, AW827103, BE904178, BG251104, BF527014, AL045620, BE877769, AV715354, AK000501, Y08702, AK024538, AF217987, E04233, AK024524, AK025906, AL133016, AF111112, AF218014, AL133568, AF113690, AL122049, AL162062, AL389939, I48978, AB052200, AF116676, A08916, AL050024, AF166267,</p>
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HD TLL66	663	864279	1 - 1236	15 - 1250	BE439675, BE903592, BF984328, BF978147, AW955502, BF337207, BE272543, AV757236, BE743902, BF212880, AA889969, AW405217, AI991315, AV701663, BE270100, BG178791, BF681301, BE222645, BG167626, BF680700, AW069149, BF238307, AV736544, BF698492, BF130460, BF132414, AI493727, AI198642, AV745093, BE254068, BG255905, BG231583, BE734398, BF102497, AI147316, AW014782, BE256074, BE646408, AI709288, BE543668, AA877730, AA934591,

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HWDAF64	664	864349	1 - 1592	15 - 1606	AI859773, AI742029, AI685738, AI819810, AW082064, BE840167, BE840005, BE671043, BF973231, AI376066, AI459167, AI361641, AI076881, AA991356, AI870728, AA913664, BF371773, AI362847, AI625523, AA243783, BF875299, AW008550,

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HETJF10	665	864357	1 - 2037	15 - 2051	AU123966, BF792749, BF037359, BF984791, AU136685, AL041265, AU133918, AV655687, AA029276, BE082643, BE883009, AW015848, BE549266, BE326761, AA436376, AI809197, W37315, AA449544, AW173125, AV687145, AA424456, BE737009, AI768591, AW052025, BF941513, AU145073, BF724398, AA497127, AW197647, AA868251, BF880936, AW955407, AW959988, AA813941, BF432619, AU155078, AA885319, BE973576, AI588927, AI376992, BF475344, AW629030, AI672284, AI083554, AA449110, BE463702, AI669820, AI023470, AV726963, AI042075, AI201848, BE934146, AI188925, AI500297, AA497050, AA236326, AI168273, N32425, AI375372, AW874582, AI188562, BF111377, AI761601, AI961121, AW088258, N56847, AI361549, AA236260, T51928, AW771637, AI431458, AI097553, AI187005, AW183545, AI242321, AI141273, AA424411, AU156591, AI142573, AW881125, AI032543, N56987, BF761828, BF762678, BF445609, AW236707, R51141, AI376513, R52093, W26719, AW009278, AA865899, AW469765, AV653982, AA424816, AU136681, AW014014, BF516119, AI307295, R52187, AA931811, BF828274, Z45509, R21073, AA481309, AI041264, BF725099, H72731, BF761822, Z41201, AA808867, BF764776, R44838, AA992217, AA654910, BF760934, H72732, AI370687, AI183333, H44383, AA337239, AI095550, H80017, N47372, H39995, AW517839, W32303, H01128, AI914542, BE247185, AI221230, BG236418, R51033, R76738, AA365326, AI869591, AA364612, AA359636, W37830, AA319331, BF772808, H80018, R20023, T51718, AI073556, R76399, AW118516, AA495856, AA778843, AA732874, AI906897, BF360540, AW393465, BF916387, AV708158, AA190535, AA906512, AI206962, BE840455, X93832, AU118619, BF038985, AK023325, AP000533, AF147339, and AK021673.
HBAGJ74	666	864391	1 - 400	15 - 414	AA026609, AP001725, and AC023510.
HT5EJ85	667	864392	1 - 821	15 - 835	AU123484, BG116908, BG116970, AU120475, AU134332, BG030323, BF345356, BG255249, BF685509, BF345482, T08102, AW008528, R23549, BE793684, BE675709, AI817029, Z46040, T78129, BF058320, AW673003, BE410393, AI971760, BF205217, BF732738, AU131260, AA286944, BE386237, BF025953, BE390969, AL535162, AW166573, AK023162, and AC083864.
HKAKL77	668	864545	1 - 579	15 - 593	BF665670, BF967372, BF700126, BF701222, BF698599, AL519982, BF698090, BF980780, BF700291, AW960010, BF665302, AL523974, BF244116, BF670196, R64612, T65609, BF665033, BF792179, F11871, AA366080, T77162, T83570, N28835,

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HCFBY67	669	864566	1 - 436	15 - 450	BF185265, AV753027, BG236401, AA430271, BF196848, W52443, AL522976, AI963267, H71660, N57270, BF568872, AW080093, H02975, AI184163, N41702, AA354805, AA835802, AA535338, AW021005, AV743200, W07198, AL522977, AA812397, R68940, BE728887, BF026265, W52721, AI423101, BF026624, AW003853, BE783839, AI372075, AI096511, BE205808, AA179520, BE902516, AA777020, AW276383, AA994803, N79712, AI870199, AI148872, AI870599, AI739030, AI341570, AW005668, AI149470, BE786718, AI217915, BE781883, AW276121, AW966996, AI129319, N29849, AA931248, AI954169, AW317040, AA210733, AI497942, AW188522, AA487802, BF002732, W15591, BE409428, AW733109, AI209189, AW005839, T64613, W53036, AW192590, AV737406, AA618546, AI922330, AW148966, BF088972, N78608, W53034, AA604432, AA147319, AI453762, N49620, AI184275, AI203618, BF377137, AI241159, AW084537, AA126052, AA772034, AA044614, T52871, AL527415, AA327444, T52870, AI186618, W52389, AA169341, BE298514, AI038856, AI689061, BG036611, AI431668, H71661, AA933756, AA157808, BE122663, AA507263, AI683964, AV744545, AA506581, AI695499, BF685464, W95393, BE409758, AI767053, AA974379, W51825, N46925, AI651851, AV714282, AA485898, H04271, T39215, BF19078, AA668960, AA069002, W95351, BE909812, AI244108, BF793711, AA533871, AA211574, BF846568, AW262814, AI745721, AV737011, BF128849, BE763802, AI963134, BF432351, T64472, AW292194, AI000753, R44489, AI370259, BF975750, AA773889, AI302087, BF818729, BE834116, AA725357, AA648372, BG166261, AA852625, R68829, N72236, AI093364, BE694506, AA973710, BE694500, AA860323, H87180, AI363886, AW732321, AI823549, BF103559, AV699847, N29434, AA782882, AA211628, AI626082, AW751585, AI810911, R76590, AI753240, AI695727, AI356992, BE789511, T32276, Z20741, Z20720, Z20718, AI066799, AW206731, AV738162, Z20833, F20230, Z20853, BF312002, AA377649, AI371506, AW235059, AI913157, Z20826, BF345622, W31668, AA209497, AA195815, AV710593, AI420917, AI978781, AF077037, AX048198, AF144055, AF015947, A74967, A74946, A74944, A75042, A75063, and A75036.
HUCNL85	670	864609	1 - 1561	15 - 1575	AL525170, BF527707, BF970711, BG025370, BE560905, BE382648, BE313171, BG254973, BG111049, BE779962, BG119109, AL530346, AW246354, BF207014, BE273342, BF315469, H17219, BE396506, AW881720, BE783929, AL047548, BF750956, BE812474, AW581642, BE261945, AW297013, BF677966, BE265009, BF111253, BE812468, AL522955, BF792135, AW296403, R25719, BF926891, H19385, T08867, AA861285, BE812501, AL522956, AA478552, BF344880, BG032567, AA450134, AW370482, BF081399, BF968412, T32904, BF315881, BF836642, BF965787,



						BE263579, AW961984, M78952, BF155249, H74159, BE260421, BF528633, AI571182, BF745614, BF378564, BF834394, BE378518, BE266986, AL520270, BE019170, AW162719, BF528912, AI910269, BF871924, BF209274, BF916766, AI674610, AW248385, BE798545, AW364801, AL530345, AA339338, AW998305, BF855358, AW898111, BE793384, Z44979, AA478551, BF149362, BF961380, T91440, BF881646, AW961065, BF835315, BE763484, BF914437, R09913, AW793516, AX035941, AF084559, AF126799, AL050118, AC004228, AC004770, AF139813, AB021980, and AF126798.
HSDIW17	671	864772	1 - 870	15 - 884		BF976896, BF306663, AI264637, AV738974, AW440517, AV762213, AI289816, BF031831, BE297329, AA308065, BF028464, BF977733, AI087224, AI333981, F22528, BE856896, AI087291, AI042559, N32838, AA101212, BF033741, AA513003, AA127626, AA716353, AA121528, AI208270, W39584, AI024761, AI805206, W44935, BG165592, BF248189, AA448463, AI685445, AA677140, AA045311, BE548267, AI094396, AA932240, BF209337, AA062780, AA973273, AA112905, AA062735, AI911056, BF342886, AA082078, AI347381, AA045417, AV711883, AI832874, AI086794, AA431571, T96692, BG167528, AI890885, AA894627, AA304050, BG235942, AI248836, AA327793, AA302176, AW772595, AA302332, AI350909, T96809, AI283682, AI695634, N42284, AA074777, AI097092, AA704961, AA704993, T97458, BG112065, BF690856, R09226, T97730, BE788922, T97914, AA203274, BF977954, BF690772, AA083929, AV716951, AA931180, AA593102, BG099483, AI540890, AI541321, and AC017002.
HAPSD53	673	864818	1 - 1454	15 - 1468		AI885337, BF038430, AW058242, AW006171, AI683297, BG151539, BE900526, AW170637, AA521253, BE900229, BF435588, AI799163, BE390009, BE222102, BE902789, AI342474, AW269145, BE221483, AI492899, AI339032, BE468188, BF063174, AW403201, AI952141, AI424932, AI652894, BE706348, AA676913, AA846869, BE221137, AI347198, AA622621, AI735209, AW190339, AW204342, AI076551, AW872815, AI347177, BE388652, BG055242, AW964942, AA873834, AA769173, AI769023, T66106, AA936795, AI092935, H05338, R15751, AI147274, HI6849, R78720, R48155, R17960, BF063794, AA181878, AA133531, AA889396, R16187, HI6741, H21663, T56878, AI191180, F11930, C17879, R43450, AI671901, AA356873, AW593905, H21662, AW207476, AI984277, T56879, F09576, AA505782, AA620362, AA326039, AL531891, AW197945, BE792574, AW888968, AK022948, AC004780, and AC011520.
HAMFW6 6	674	864987	1 - 455	15 - 469		AA181631, AI903265, BF989794, AW297814, AA419387, BG105915, BE003461, AF271070, and AC016254.
HTJMU48	675	865019	1 - 1106	15 - 1120		AL530369, AL535061, AI533033, AL526905, BE733578, BF026569, BF966291, BE727875, BF981187, BF183255, BF967510, BE272946, BE615953, BF182678,

					BE616877, BE272973, BE616777, AW374089, BE615247, BE731063, BE384379, AI214031, AL532487, BE019121, BF983883, AI752151, AL523946, BE835633, AL138133, AW581413, BE241701, BF819501, BE617300, BG104797, BF798681, BE243315, BF358033, BF872811, BF229532, AW380906, BF983957, BF329587, BE872636, BE074050, BF795012, BE906347, BG115718, AW605408, BF988678, BG015701, BG121424, BF980469, AW371243, BF733190, BF230058, AW388721, AW608453, AW373057, BF738922, BF526571, BG253820, BF684157, AU076659, AF037339, D67067, AF037338, AC011489, and AB015172.
HAUAE93	676	865020	1 - 821	15 - 835	AL531509, AL514522, BF526571, BG253820, AL523946, BF684157, BF980469, BG121424, AL532487, BF983957, BE382434, BE886275, BF689553, BF689896, BF944761, BG115718, BF851425, BE743030, AW882041, BG104797, BE617300, BE794829, BF765343, BE940065, AW364990, BF808730, BF951584, AA076557, AI909328, BF947166, R86655, AW392303, BF983883, Z43259, R56493, BE938387, BF358033, AW581413, BE843795, BE933378, BE936805, AW886746, BE937970, AA005246, AW602670, W27475, AW365079, BE074050, T81955, T81959, BF822519, BF091955, BF799596, AA731294, AW663033, AI032686, AA102176, AL526869, AL535061, AL533032, AA767618, BE615953, BE616777, AI214031, AF037339, AF037338, AC011489, and D67067.
HAICK45	677	865026	1 - 2683	15 - 2697	AU124026, AU125556, BE783093, BE795410, BG250051, BE783631, BE670928, AW294122, BE006510, BF110609, BE777779, AI133682, BE893801, BF816694, AI681449, BF815559, AI697810, AV752626, AW364876, AU123379, AW245308, AI768205, BF816059, AW953830, AU154731, BF438408, AI954608, AA608681, AI78604, AI094173, AW953829, BF195855, BF062831, AW166233, N35935, BE858085, AI338928, AU149190, AW959434, AA582845, AI989985, BF887251, AI633899, AI141852, AW269352, AI926632, AW996354, AA640311, AA278230, AI206195, AI270670, AI360878, F20547, AI337068, N67886, N67901, AI378580, AI621188, W95887, N24059, AW167800, AA830972, BF433869, AA213727, BF431102, AI494190, HT7549, BF063492, AA071400, H82545, AI752077, T69890, AA689415, AA976754, BF815137, BF935062, AA774596, H78187, AA213435, N58007, AA652125, AI568847, AW080567, AI752076, AA630655, AA301148, R25524, R00427, H77550, T80885, AW630520, AI825340, W95761, AI217218, T70218, C04730, AA301050, R00428, R40274, AV652368, AI918621, R45585, AW974417, C00681, AA369698, T85808, BE792924, AA251346, R14323, R41093, T70308, AA278724, AA369697, AI079843, AW581898, AI557924, BE720138, BF376223, AI923602, AI908753, AW369639, AW369630, BE671925, AW351436, R28905, AI445617, AB002299, AL096678, and AK027048.
HBIK139	678	865163	1 - 720	15 - 734	AV763790, BG035095, BF311394, BE866107, AV710161, BF213450, BF033854,

HAGHY26	679	865168	1 - 2014	15 - 2028	BF027535, BE560230, BE905264, BE612736, BF676342, BF212353, BG165664, AI131355, BE263142, AV763738, AA292974, A1557194, BF968040, BE384654, BE906893, AI090743, BE314436, N27721, AA557194, BE563017, AI804348, AA631848, AI146318, BE730034, AI539429, BE909983, BG236215, AW005799, AV733534, AA233902, AV682591, AI363335, AI082444, AI096906, AI422717, AA743800, AW136326, AI347590, AI087101, BF222827, AI02687, AW274996, BE550312, AA211343, AA211344, AI359155, AI333899, AA771974, AI343807, BF216279, N40054, AI142815, AI924652, AA436038, AA732876, AA810604, W25483, BF382936, C17967, H43647, H44711, T47061, AI547066, AA810608, AA299376, W19321, AI191094, AI219430, AA327206, AA234130, AW820573, AI525325, AA339885, BE267639, AA515856, T78524, AA729144, AA781701, AI247706, BE832365, AI350950, AA344641, AA193664, AI184429, AI583130, C00003, AI334371, N93495, AW204078, AA705561, BF697461, AA626270, AW874644, BG152857, BE833515, AI540527, AI351930, AJ278552, AI002507, AV742655, AW867230, AA435940, AA383605, AA398308, AA983731, BF031257, AA625778, BF246352, BF034079, BF081420, AI696588, AA551930, AA732937, AD000671, AF220053, AL133047, and AK027172.
					BF673779, AW188040, AI221736, W87563, N93749, AW236556, BE552284, HI0565, W87467, H23069, AA699314, Z43772, AA693810, AI918675, H24347, Z39835, AI184773, AA972788, AW594645, and HI0362.
HCLS187	680	865172	1 - 625	15 - 639	BE048233, and AK024569.
HJBAQ50	681	865176	1 - 1849	15 - 1863	AL118982, AA394289, AA527127, R53332, BF593175, FI1356, AA412141, R21019, T78686, R35190, R24849, T80400, Z43686, AW303583, Z46003, M78951, AA355887, AI621051, R50850, AI933711, AA888981, AI825042, R53937, BF741667, R39312, BF224101, R46134, AI302700, N51360, T17357, AI651758, and AB002297.
HTELJ31	682	865259	1 - 904	15 - 918	BE738225, AL535280, BG026763, AI885366, BE645606, AI302161, BF593751, AA242838, BF342857, AA446910, AA411760, BF244385, AW070321, AI814097, AI921187, AA447031, BF940067, AI493864, AA773130, AA496344, AI969151, AI371862, AI339154, AI253169, AI037935, AW510547, AA496393, AI122549, AI911375, AW249456, AI336467, AW263815, AW341480, AI055846, AI524628, AW136484, AW168421, AW248489, AA725305, AI333083, AA889590, AI884966, AW003871, AA733005, AW026126, AA534067, AA242738, AA279341, AW131306, BF594234, AW471456, BF196531, AA079369, AW466944, AW955701, AI311396, AA079368, R80506, AW519278, AI040818, AI269710, AA854533, AA196585, H72443, AA779210, T61615, AI374705, R80400, AA931193, AW197539, AA187141, AW893379, BE617112, AW191890, AW072109, T49445, AA406574, BE297346, AA443221, BF993721, AI302163, AJ278548, R01059, BF447381, AI032463, H59814, AI016223, AI968752, AW136446, AI015349, BE907334, H72353, T57782, R67486, R66343, R01784,

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HPJBE61	683	865275	1 - 1109	15 - 1123		AL530596, AL530595, BF980986, BE748707, BF127552, AA402192, AA291615, AA652443, AA292475, AA830063, AI270545, AI928523, AA866174, AA461524, AA477033, AW298514, AA778558, AI500380, AW955121, BF842518, BE539361, AA293673, AA768790, BF843066, AA402823, AA312083, N95468, BE889325, AI205571, AI198576, W74354, BF084989, AA770325, BE077353, W76549, AI826564, AA764941, AI749672, AI262451, BF817239, AA236730, BF817243, BF817326, AA460596, AW189630, BF696893, W25208, AA220212, AW952409, AV703593, AV703222, AV648263, AV652027, AV708723, AV729263, AV726520, AV651700, AW949795, AW951214, AW955613, AV696106, AW951263, AV689111, AV728157, AV692345, AV708893, AV659536, AV706219, AV707541, AV704637, AV726624, AV709604, AV704955, AV652156, AV658332, AV701707, AV727799, AV705693, AV726784, AV703159, AV708704, AV702427, AI557254, Y11505, and U38894.
HLTCU22	684	865293	1 - 717	15 - 731		AU131397, AV709023, AV649313, AA446793, H73097, AV649514, AI525507, H86748, R14393, F07747, BG236449, N45507, BE857570, AW818138, AA255828, AA255827, BF763365, AK023169, AF169974, AL450226, AL137039, and AF148321.
HE8DZ49	685	865322	1 - 1554	15 - 1568		BG141332, BG115975, AW402616, BF129128, AA487951, AV733264, BF934693, AA383094, BF570933, T80138, AA235941, AA322684, BF917289, AA985393, AA322021, BF741689, R05721, AA031936, BF850739, AA481880, AI640322, BF898592, BF898584, AV723818, AV701066, R13275, AW961883, BF830023, AV725961, AW370906, AW517885, AB018339, AF043290, AF281869, AF281870, and AL078582.

HEGAC86	686	865369	1 - 885	15 - 899	BE467539, AA524412, A1742825, AW268891, A1588931, A1459294, BE895437, A1765671, AA725573, AA429631, BE326464, A1417654, BF448278, BF447896, A1253095, AW073496, AW023725, A1167959, AW103495, AW969533, A1093855, AW268823, A1337559, A1653983, R96969, AA570087, A1263434, BF883014, AV692191, A1045163, AA910889, BF883015, R70192, A1689914, H58753, AA939009, R96914, N51672, AA256181, N73098, A1431926, AA091662, AA894430, AA429632, AW959946, AK026041, and AC010289.
HOUDS89	687	866090	1 - 987	15 - 1001	A1083899, BE275761, AW207384, AW136129, A1927645, BE673962, A1659080, A1569753, A1197768, BF445510, BF438389, AA973894, A1917444, A1363893, BF115804, BE727723, AA865863, AA931590, BF027101, A1032339, A1032343, A1571304, A1371819, BF515519, AW298035, BF513595, BF513048, and A1039911.
HCEVF41	688	866297	1 - 1142	15 - 1156	BE910478, BE261639, BF308306, AW249090, BF246849, H09414, H18721, A1394026, R11726, AA025081, AW248655, BF742266, BF246058, H46443, AA055061, H29433, A1534131, BE019085, BF207033, AA293722, A1094911, AA627408, AA631985, A1971919, BF940419, AW028826, BF436716, BF732259, AW055123, A1094408, BE258822, AW051497, AA327540, A1041348, AW955452, A1338005, A1245937, Y17801, Y17802, A1245935, AB033418, AF232061, and A1245936.
HPWBO25	689	866302	1 - 681	15 - 695	A1557762.
HSKNJ56	690	866374	1 - 580	15 - 594	AU117035, T27082, BF751939, BE843418, W85798, R35500, AW895204, BF878078, R18150, AW863634, W81641, AK021448, AK002198, and AL121926.
HSSKF43	691	866388	1 - 1282	15 - 1296	BE786334, AW474547, BF001686, A1830378, BF196489, BF242919, AW474497, BE540110, AW474534, BE932149, AW044135, T26672, AV721244, R39421, R39406, Z40760, AA248329, BF970155, BE253241, AW518599, BE843437, H88189, AW514672, BF512997, A1902631, A1902632, BF679380, AA229293, AW189301, BG168549, AW089275, A1358701, A1801152, BG113385, A1613436, BF061283, BE887488, AW827106, AW262983, A1363957, BG104820, BE886728, A1439717, BF970449, AL039086, AW129929, AW020693, BG251478, AW023590, A1382670, A1524780, BF061286, BF970768, A1431424, BG166654, A1890507, A1955906, BG251110, AW105601, A1471361, A1799183, BF904265, A1729439, A1700159, BF854113, AW302992, BE910373, A1690748, AW269097, A152469, AV708004, AA983883, AW089572, A1475134, A1349957, A120700, AW072719, BF680133, A1911648, A1336495, A1345005, A1632997, A17029197, BF884999, AW268253, BG033723, AW090539, BF527014, A1866798, BE964078, A1119863, BG163618, BG001235, A1933589, A1611348, A1309401, A17149925, AW020419, A1345608, A1757943, A1811785, AW268302, BF726348, BE877295, F27438, A1567612, AW301300, A1433384, AW075207, A1343037, A1648684, A1345735, A1280747, A1627604, AL036980, AV717234, BE138712, AA291456, AV757343, A1917963, A1500659, A1254597,

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HSKJK72	692	866398	1 - 892	15 - 906	AW296349, and BF997224.
HACBC20	693	866413	1 - 1211	15 - 1225	BE513148, BE797807, BF969302, BG029975, BE974033, AI459123, AW205404, BG249612, BE161969, BE857362, AW026544, BF589390, BE858281, AI764966, AI290966, BE219681, AW131828, BF476182, BG149542, AI338637, AA251984, AI422067, AI458743, AI880429, AW301645, AA490191, AI680968, AA625101, AI160212, AA489660, AI634228, H07818, AW290929, AI32858, AA310446, BF437800, AI351545, BG152888, AW300218, AA421793, AI348502, BE502895, BF111045, AI081043, AI200681, BE326725, AW419232, AI948814, W94428, N33300, AI128774, AW612289, BF897207, BE857515, BF929419, AA310284, AW160878, R37249, AI619597, AA707491, N44832, W92639, AW958256, AI183724, AI798320, AI474743, T19385, H09911, AA456128, D20796, AI933847, W04798, BF054984, T62971, BE881545, H09816, T63223, AI470992, AA252090, BF927676, R12320, AA459752, BE925970, AW891960, AV645773, AI928661, AV645897, and A52243.
HSDIS65	694	866560	1 - 1838	15 - 1852	AL048947, AL048946, AI914416, AA921826, BF675122, BF954517, AW963319, AV723474, AA861010, AA897158, AA057762, AA357651, BF875848, AA298255, AW753507, AU157255, BE835296, AL120223, AA258268, BF967179, AU137659, AW846413, BF967245, AW375642, and AK002017.
HHFEL55	695	866610	1 - 2014	15 - 2028	AI300085, AI953023, AI923834, AA534574, AA621869, AI540078, BF338832, AI554777, AA478423, AA662479, AI079230, AI870830, AA805634, AI817685, BF002847, BE281539, BF876402, AI554780, AA828330, AA641940, BF568662, AI560206, BG222392, AI570555, AI804877, AA621800, AI304391, BF515070, AI142933, AI004697, AI857389, AA290739, BF512572, AI081510, BE819351, BE245307, AA402200,

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HSIDL28	696	866611	1 - 542	15 - 556	BF876402, BF870207, BE819351, BF876394, AA478423, D61634, BF876415, BE141854, AA343865, BF568662, BF895975, AI859904, and AC004221.
HELD78	697	866684	1 - 1859	15 - 1873	I28792.
HCMTA51	698	866733	1 - 731	15 - 745	BF932257, and AB037815.
HSZG23	699	866813	1 - 454	15 - 468	T96724, AA701886, T96613, AL133245, and AL121653.
HATDH85	700	866832	1 - 712	15 - 726	BG179979, BE872825, BE378971, BF692038, BF794633, BE748450, BF793582, AW960365, AA313983, BF679774, BE894558, BE545903, BG168341, AI671142, AW956203, BF246599, BE789312, AA325169, T51465, AA420454, AA375752, BG178312, BE735826, T98387, AI905845, W17013, T71419, BE746277, BF030023, H83008, T81203, AA090068, N73033, and AK024673.
HTXNU58	701	866980	1 - 1601	15 - 1615	AL518407, BE390065, AW247313, BE794675, BE264777, AI741443, BE253080, AI693707, AI143127, BE266914, AW026265, AI924930, AI935334, AW051881, BF727147, AA229047, BF087096, AI694101, AI199736, AW628929, AI684280, BF087080, W39029, AW963448, AA868527, AI369441, BE503235, AW594196, AI827081, AW375912, AI799947, AA588251, AA402050, AW029039, AA311874, AA133015, AA854390, AI078410, AA846098, BF433291, AI078477, AI568317, AA621434, AI885825, AA401956, F31153, AA889522, AW024441, R73295, AI193624, BF569759, AI262714, F34143, AI823605, AA676985, AA132720, AA586510, AW005922, AW193025, AI766837, AA229112, AI675643, AI536634, R71809, AI079947, Z41190, AA364116, H99126, BF063250, R54969, AA730069, BF688524, BF888478, AA327014, AA767519, AI381855, H27100, AA888028, AW149951, AI277176, AI825306,



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HHSP165	702	867000	1 - 933	15 - 947		AL523125, AL533388, BE731085, AL536490, AL528592, BE742386, BE260488, BF339003, BF204198, AL527097, BE315275, BE396268, AL521084, BE279532, BE789843, AL535451, AL533206, BE294467, BE294064, AL522670, BE313053, BE791521, AW410248, AL535106, BE379550, BE257953, BG250732, BE788649, AL524249, AL536589, AW896073, BG115055, BG178245, BE906891, BE262939, BE791682, AL521963, BE299829, BE394960, BF686528, BE737462, BE901021, BF839704, BE836221, BF182949, AA447347, BE790670, BE780791, BE906503, BF346674, BE891675, BE813627, BE617062, BF973295, BG001368, BF986410, BE737444, BF973329, BE890212, BE385628, BF347076, BF982052, BF305720, BG035331, BE389700, BE389156, BF970413, BE390180, BF765773, BE388422, BE386485, BE162527, BF569408, BE797693, BF985492, BE298811, BE884989, BG001371, BF688362, BE620511, BF035350, BF347446, BE272650, AW403669, BE378920, AA130797, AW953445, AW956870, BE612804, T35634, BF568099, T35640, R98124, AW607654, T08443, BF959394, BE745610, AA461412, BE843323, AA493816, BE868244, T35803, T35645, T08078, BF763511, BF035737, BE798645, H56252, BF205431, AL120204, W31266, T35607, BG251430, BG026669, AW390286, AA324356, T35562, BE778020, AL533664, T35560, T35580, AW994047, BF964045, T34460, BE544039, D55812, R87889, AL533350, T35561, AL524248, AL135544, AL523124, Z42226, AA303806, T35564, T34266, BF762110, BE002599, AA325465, BF317044, H46568, AA133042, AW879358, AW879290, BF935171, AW498707, BF741737, BF038808, BE140487, BE893071, AW845184, BE140485, AW747951, BF740744, BF741783, BF741257, BF360609, AW178880, BF808207, BF741252, BE701610, AV657771, BF982929, BE701608, AW402690, AL533663, BE868322, BE387658, AW178862, AA065281, BF830003, BF948397, BF529863, AA319835, AA977776, AL521083, AU126624, BE536556, BF734814, AV657800, AW845175, BF948398, D78915, W90309, BF948223, AA102711, BF307126, AW956387, BF841751, BE171496, AA340091, H39700, H14195, BE930046, BE930049, AV697048, AL521962, AW882314, BF337722, AA369470, AW948539, AW274402, BF839955, AW379477, AA302545, AF176006, AK022783, AF151822, AF189289, AF192559, AF176007, AF192558, and AB040292.
HRADG27	703	867187	1 - 828	15 - 842		AI003935, BF983692, BF365672, AI560657, AI952878, AW204417, AI916698, AW779600, AI036080, AI270725, AW130318, AW071838, BF197272, AA595148, AA496286, AI968048, AA535372, AW469243, AA458983, AW662372, AW103390, BF001976, AW241678, AA992806, AA702669, AA411460, AA680090, AA427557, AA057543, BE217837, AI025790, AA419217, BF895403, AW236215, AI933720,

					BF767496, AW102764, AI471307, AW028139, BF767749, AL036079, AA779900, AA005226, AW627819, T85330, BF767501, AI275738, R05480, AI801715, H72246, AI250341, AA609061, BE770024, AI392865, AW206043, AI766731, AF279265, AC005923, AI050170, and AL024507.
HWBCE30	704	867206	1 - 679	15 - 693	BE882545, BE745043, BF880985, BF843976, BF841772, BG006450, BE273277, BE273774, BF881163, AK026959, AC036158, and AC036158.
HBGOF57	705	867330	1 - 956	15 - 970	AL527057, AL523047, AL527093, AL528652, AL527989, AL533103, AL530947, AL523026, AL528651, BE906415, BF795026, BF529536, AL515511, BG028753, BG109320, AL530946, AL527988, BG108337, BE409222, AL524166, AI142548, AI076620, AL524167, BE410603, BE858213, BF526060, BE537964, AW207539, AW593262, BE670549, AI391504, BG253740, BF056059, BF112238, AI148710, BE644982, AI459137, AS22920, BF115279, AI762559, BE327654, AI373860, AA913826, BE645078, BF590067, AI095293, AI803364, AI050874, BE538620, AI890078, AI581290, BF430963, BF195714, AI083994, BF195536, AI052777, AI074517, AI167180, AI074538, AI151312, AI936640, BF112128, AI015839, AI674344, AA937098, AI990059, BF111223, BF940920, BE674527, AI339776, AA917921, AI354825, AI085262, BE887668, BF222052, AA581990, BF196713, AA215693, AI087807, AA810757, D19607, AI089883, AI161211, AW340672, AA831950, W74293, BE676767, BF196679, AI084131, AA287408, AA476727, BE464991, AA744671, AA423998, N31738, AA305157, AI097584, AW301681, AI829997, AI498589, AI359885, AW102710, F22539, AW083322, AI796928, AA282043, C01766, N27093, AI370809, AA886734, AA282205, BF002462, AW028614, AA989141, AA404240, BE876093, AA287357, AI356196, AA631293, AA358542, BF941746, AL121501, BF360037, AA876563, BE857062, BF832752, AA370269, AI953829, AW470863, AW072175, BF817268, AA425621, AI610796, AW518575, AA307877, AA362894, AI160244, BG259640, AI624790, AI367991, AW104623, AA370270, BF815419, AW089151, AW404514, AA282321, BF870069, AW137670, AI471239, Z39418, F10607, AI128796, AI435516, BF109728, AA732841, AW474739, AA625635, AA969232, AI040652, and AA976485.
HAPNX79	706	867380	1 - 1554	15 - 1568	AL530013, BF057597, BF689272, BE780679, BE264598, AU159982, AU159148, AI889175, BE782348, BE867162, AW001971, AV660589, AI940395, AI589299, BE398067, AI808453, AA809956, BE397390, BE304519, T15859, AI962984, H20543, BF348076, AI685406, AA235197, BE560657, BG056919, AA862809, BE514151, BE278697, BE900545, BE902464, BE733341, BE744609, AI243558, BF868362, BE273629, BF688464, BF590659, AA995380, AA962405, BE696154, H20635, AW242465, AW815015, BG120718, BE504803, BE256213, AV657583, AW951235, AV709580, AV709935, AV703762, AV727032, AV727613, AW955012, AW952183, AV709587, AV659389, AV659294, AV727787, AV725745, AV686060, AV660608,

				AV709314, AV691080, AV652001, AV727003, AV727526, AV701496, AV728924, AV725617, AV699089, AV656478, AV706074, AV709660, AV654035, AV704042, AV729220, AV687035, AV697498, AV655096, AV727238, AV696866, AV728997, AV656256, AV698429, AV692972, AV695545, AV656283, AV704234, AV708025, AV729378, AV684604, AV708980, AV692691, AV728270, AV709256, AV702516, AV693523, AV727807, AV703456, AV726103, AV728642, AV727029, AV727221, AV707510, AV728471, AV708438, AV725134, AV696931, AV728436, AV683994, AV708992, AV728733, AV965874, AV690768, AV686420, AV682997, AV686390, AV686417, AV686083, AV694871, AV704124, AV703501, AV727126, AV649758, AV725956, AV728985, AV707329, AV656903, AV697288, AV655890, AV697196, AV707753, AV655280, AV659322, AV654908, AV704553, AV698545, AV708893, AV708381, AV660728, AV702345, AV651955, AV661704, AV703169, AV698609, AV728518, AV706532, AV727929, AV964231, AV961403, AV704637, AV692345, AV686064, AV726156, AV960720, AV957068, AV954032, AV706229, AV706854, AV709604, AV701067, AV726681, AV728652, AV725920, AV659547, AV652156, AV658332, AV725054, AV685688, AV689800, AV693005, AV687909, AV701707, AV702854, AV961112, AV684762, AV707933, AV701914, AV705159, AV709407, AV708704, AV703495, AV725826, AV705280, AV727272, AV726816, AV727459, AV702832, AV697880, AV701874, AV687946, AV959895, AV728721, AV701537, AV707415, AV726590, AV706407, AV702794, AV687176, AV725033, AV728965, AV729094, AV727343, AV705811, AV708961, AV726787, AV960326, AV958093, AV660258, AV702385, AV658863, AV709786, AV696106, AV703855, AV704592, AV701538, AV702861, AV692600, AV951263, AV689111, AV728157, AV683443, AV646808, AV706219, AV725864, AV959823, AV964095, AV950247, AV964800, AV959848, AV659536, AV959863, AV705632, AV954116, AV726624, AV706721, AV706659, AV704955, AV963264, AV684962, AV704269, AV727103, AV727819, AL110260, AK023915, AX047063, A82595, A82593, AR050070, AX047062, A62298, AX047064, U94592, AX009343, AX009341, AX009337, AX009335, AX009345, AX009342, AX009344, AX009340, AX009339, AX009336, AX009338, AX009334, Z30183, AF006072, A62300, AX040581, U45328, AX046743, and AR025466.	
HABZ74	707	867423	1 - 1539	15 - 1553	AI205313, BE738251, AI127426, AI860308, AI831972, AU119812, BE797476, BE676390, AW027255, AA984233, BE139485, BG255959, AA255717, BE793963, AI033544, AW438777, AW298592, AA134896, AI564553, AA626401, AW872789, AI138267, AW967914, AW298665, AA476381, BE793467, AI858426, N25295, AA279684, AA054506, AU146059, N75231, NS9205, AW271849, AI760694, TI6353, AA550740, AA279808, AA446420, AW293935, AI655784, AA262678, AW607571, TI7104, AA317993, AW607558, AW247039, AW615803, H00572, AA209219, AI364413.

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HKATA81	708	867546	1 - 2136	15 - 2150		BE620053, BE620593, BG109710, BG119433, BE383397, BF035847, AA872710, BG111960, BG248347, BE904996, BF036705, BE378983, BE740887, AI300158, AV716604, H98963, BE257692, BF036166, BF310661, AU128210, AW778814, BE294553, BE879729, BE261359, AW592818, BE258999, AW953784, AV710056, BG026514, AA044747, AA044799, AW051637, AI921790, AI469932, AA947927, AA878925, AA934688, AA058505, BE567185, BE251176, AI016169, AI453622, W95793, BF312584, BE271728, AA834560, AA903577, BF310228, AI299177, AW749554, AI309289, AW874395, AW293746, BE245674, AI948425, AW118921, AI277337, AI085685, AA934482, W38688, AI303007, AA421510, BF243996, BE440006, W95680, AW342036, AW601910, AA053139, AI419931, AV712772, AA962740, AW749576, AW954824, AA417091, AA055227, BE552333, AW291750, W31033, BF304421, T87073, AI371426, AV681938, AI143381, N92290, AV756120, AV713230, AW749583, BF088974, BE794262, BE258966, AV737047, N25835, AA912713, AA037518, AI097662, W80906, AW291904, AA315305, H71267, AI361634, AW374030, W80813, AW196527, AI247237, BF909052, BF336991, AA657605, AA037362, H41713, AA541343, AW300889, AW300782, BF831587, AA878777, W24468, BG114386, T81887, AA054464, AW374000, R05508, R05615, AW374003, AA363979, AA055226, BF216378, AI041162, AA213429, H73396, H75589, AW384982, BE067202, D20873, AI831636, AI038897, AW795930, BE327096, W86895, BF759237, BF792783, T87074, BF513528, AI311824, BG036220, AI074803, AI690185, BF510224, AF161512, AK024569, and AK024237.
HPMLG49	709	867555	1 - 1858	15 - 1872		AL517380, AL526030, AL514658, AL517381, AI654159, BG178822, BG032080, AA905050, AL526087, AA626798, BE878244, BE218373, BF670896, BF669274, AI810478, AW972555, AI770026, AI888497, AL515104, BE018661, BF207186, BF063287, BE302235, AI478541, AI471838, AW960373, AW377554, BF977505, BF691371, AA314457, AI207225, AI681751, BF696277, AW043978, AI783497, AW299783, BG260195, AW269176, AI937849, BE536570, AI274063, BE766991, AV662157, AI418394, AI247276, BF977120, AV738504, AW607490, BF762248, BF977789, AI879137, AA505969, BF105901, R44048, AL207224, AW235231, BF764012, AA505871, BF223084, BF764013, AA397413, AL515103, BE882337, BF724709, BE568397, AI284411, R39687, BF509264, BF724252, F08821, AI138560, BF930541, AW418591, BF511721, BF978956, H02294, HI9601, T49354, AV737871, HI9720, AA075444, AI698907, AI041138, BE048891, AW014778, HI9568, BF224416, D11695,

						H47194, AA009866, T49355, AI049761, AI816449, HI9515, AI620398, H20058, AW262559, AI285929, AI423579, AW022720, AA507367, N22165, N71532, AI075991, HI9485, AW817717, R72180, AI015251, AI953565, AA089888, AW888597, AW888622, AW888626, BF344236, BG165731, AF195623, AC010205, AC005409, AF047431, AF195624, AF225896, AF181478, Y08486, Y08485, X75785, AK025141, and X77371.
HPMJN59	710	867569	1 - 911	15 - 925		AI917735, AL043338, AW303607, AI819365, BE733691, AW958665, AI243857, AW469635, AW469326, AA496257, AA278626, AA278625, BE789604, AA417787, BG163397, AA306656, AA831859, AA769522, AA157110, AA312210, AA579065, AA564476, AI205635, AA740386, W23045, AA491643, AA810400, F29732, AA417708, BG165205, BE677853, AI567332, BF830136, BE888665, BE739252, BE703932, BE831081, BG259221, BE831119, BE703947, BE703933, AF221635, AF221634, AF221636, AK000290, and AF221637.
HKAED76	711	867582	1 - 1247	15 - 1261		BE176391, AW043865, AW008387, AA707041, AA148822, AA682310, AI742170, AA029670, BF810978, BF439099, AI168076, AA150422, AA693926, W00859, N67047, AA044243, H75419, BE467072, BG166474, D62012, BF211202, BE771574, R09346, R09234, H68486, R06965, C00322, BG055641, AA044324, R06914, AK027115, and AC007969.
HSPAD49	712	867588	1 - 1343	15 - 1357		BF573452, BE568159, AW992556, BF433313, HI2032, RS3300, R64078, AA234006, BF752650, BF910955, R32285, AI243343, BE812411, BE144212, BF085385, AV749701, BE537504, AI971227, BE566136, and AF198489.
HARMV22	713	867612	1 - 586	15 - 600		BG251248, BE870251, BF183244, BF305644, BG115015, BF305304, BG109203, BE386152, BF982251, BF982386, BE899550, BE301893, BE299415, AL522002, BF970528, BF793440, BE901577, BF344719, AW732476, BE779176, BF316646, BF673757, AL521166, BE409982, AL521608, BE732838, BF340859, BG117962, BE281306, BE280374, BE901175, BE735023, AA206511, BE281612, AA204913, BG249255, AL522550, AW250139, BE872442, AA233944, BF237978, H66924, BE410162, BG165427, BE547252, BE278514, AI752100, BE793472, BF125052, BE018945, BE018944, BE298316, BF688682, BE868990, BE707861, AA580387, AI243650, AI271671, AJ243649, AF132942, AF151829, and AJ243651.
HSDIY76	714	867686	1 - 1008	15 - 1022		BE545147, AI003306, AA724572, BF934855, AU141321, AI671252, AA563603, AF156857, and AK023880.
HPJEV26	715	867728	1 - 2433	15 - 2447		AW967465, BF791746, AW957363, AW577740, BE885009, BF435463, BE835283, BE909759, BE835339, BF588573, AW602441, BE666903, AI207040, BF977682, AW379050, AI540159, BF571100, AI769050, AW298379, AA780799, AW750518, AW732059, R56412, R62196, AW628422, BE835274, BF208275, AW189344, AI687116, AI202320, AA599735, BE835264, AW577940, AA113450, BE835266, BF115614, AW243682, AI263369, R68073, AA350381, AA884718, AW195121, BE826016,

HPJEV91	716	867729	1 - 851	15 - 865	AA279250, BF369133, T86222, H69827, BF063069, R39471, AA090799, AW369800, R65869, AA329705, BE782401, AW167762, AA854643, BF995101, N77650, AI689829, BE503641, BE927088, AA996345, AI033930, T10408, AA771990, AI760189, AW149527, AA418809, AI905914, BF342692, AA705912, BE814936, BF055337, BG006890, AA873300, BF112177, BF000218, BF380094, AI740596, BF380091, BF907097, AL050164, AF081259, AF081258, AF081261, AF081260, AC003684, and AL022725.
					BE387162, BF977263, BE564669, AA648416, BF195892, AW360816, AL522606, BF246187, AA428104, BF242435, AI671172, AW970286, AW292932, AA112735, Z45570, AW970367, AI767437, AA534599, BE502417, AA426017, W90405, BF514574, AI292331, AI352501, BF185515, AA112712, W90145, T49740, AI797956, T49741, AW013955, AW007052, AI760456, AW360813, and AF147306.
HAMGK1 8	717	867752	1 - 658	15 - 672	AV734391, AU143505, AU118959, W02272, W30926, BF207606, AV709525, AA256013, AA227194, H87111, AA386066, AI915132, AA312983, AI915142, AA252578, AW504732, BF208948, AU135918, BE840881, R57641, BE164397, AK024050, AK021735, and AK001873.
HCHOH94	718	867777	1 - 560	15 - 574	BE384965, AU137671, AU141037, BF315974, AI815752, AW408615, BE247057, BE245909, AI906637, AA309547, AK002018, AF047690, and AK024401.
HPJDA25	719	867778	1 - 804	15 - 818	AU141037, BE384965, AU137671, BF315974, BE247057, BE245909, AI815752, AW408615, AI906637, AF047690, AK024401, and AK002018.
HJACF33	720	867890	1 - 1045	15 - 1059	BE175371, BE875777, AA311147, AW753492, BF241421, AA063503, AA772927, AW962323, AA063426, AW408063, BF329064, BF329057, BF907586, BF907580, AA526193, AW972802, BF756910, AI274692, AL138265, AA169768, AF236698, BE062158, BF915839, AA127354, BF872216, AA127353, AA721577, AI078409, AI907157, AU144500, AI914151, AI951436, AV730310, AV730307, AW406659, F26719, BF245039, AA579249, AV732042, AW976134, AV691147, BE044986, AA533138, AI934307, AW407220, AI720141, AI559114, AA493902, AI339440, AI935827, AW500532, AU155231, AI050007, AW962942, H94871, BF211759, BF815810, BE617662, AI355224, AL134457, AL138218, AI799545, BE395137, BE541778, BF827410, AU120769, AI446474, AI754658, BE906897, BE164011, BG010717, AW074207, AI709365, BF766647, AU158588, AI141675, BE152176, R96190, AI061313, BE092029, BE174036, AL040324, BF815578, BF944517, AV711535, BF589833, H98660, AI619634, BE047734, BG115446, AA483043, U73638, AL117380, AC007738, AL034420, AL133283, AL121902, AL109801, AL158830, AC010609, AL009177, AL121901, AC011473, AL031428, AC002524, AC011495, AL078581, AF130248, AL008726, AL133246, AF070718, AL163208, AC006515, AL158206, AC005833, AC007536, AC068799, Z98050, AC005277, AL024498, AC002544, AC009481, AL121964, AL080275, AL132639, AL031602, AC004655, AL109743, AL008710,

					<p>AP001728, U91326, AL161450, AL049712, AL133289, AC004972, AL049766, AC007546, AP002898, AC007428, AL139186, AJ133269, AL121655, AC000063, AC004806, AC004217, AC006111, AC007151, AC004518, AC010618, AC006994, AL160153, AC008011, U91322, AC006487, AC005217, AC011480, AC009134, Z98048, AC017047, Z83846, AL137839, AL022237, AC007055, AP000086, AL132659, AL121653, AC005696, AF243527, AC011200, AC006116, AC004019, AC004971, AC020663, AC006013, AL031577, AC011489, AC006006, AL032821, AC005412, AC004087, AL138836, AC009600, AC006023, AC006367, AF235097, AL355101, AC020934, AC012627, AC023105, AL034372, AL353667, AC009516, AC002455, AL132773, AC007686, AL157372, AC006353, AP000692, AC007666, AL391114, AJ289880, Z95114, AC005746, AC008101, AC011465, AC006317, AC008958, AL008721, AC008873, AL135749, AL353748, Z94801, AL354696, AL118506, D88268, AL096791, AL353194, AL356801, AP001671, AL035460, AC007238, AJ277557, AP000072, AP000113, AC008753, AL135924, AC005881, AC004890, AC005104, U52112, AL079338, AL031255, AL008630, AB000878, AL109921, AF152365, AC009948, AL033528, AP000745, AC005236, AL008715, AC004089, AL117330, AP001725, AL031656, AL049542, AL021398, AC002369, AL121895, AF205588, AP001694, AC006046, AC004867, AC020350, AP000514, AL139350, AC004983, AC008474, AL022313, AC008626, AC004000, AL022316, AC000353, AF225899, AB023048, AC022392, AJ246003, AP000511, AC006071, AC006539, AC004796, AL049760, AL121890, AC008443, AJ009616, AC005041, AL135901, AC004263, Z99916, U72787, AL138894, AC006965, Z94721, Z97054, AC023425, AL445567, AC003007, AF196969, AC020947, AL050321, AP001752, AC005244, AL049646, AC005513, AL050349, AC005098, AC000052, AL445248, AC006198, AC009001, and AL035415.</p>
HHFMP57	721	867925	1 - 2416	15 - 2430	<p>AU118345, AL527014, AL527058, AU118363, BE742611, BE742293, BE271215, BF970244, BE315413, BF340708, BF342502, BE612861, BG117374, BE515247, BE392474, BE561702, BE390695, BE391180, BE389238, AU118485, BE390366, AL040934, BF975756, AW953651, BG178468, BE389499, BE390873, BE395783, BE693958, BE559667, BE262612, BE269669, BE885417, BE512886, N78326, BE884486, AL354583, BF995149, AA102590, BE276977, BF314335, BE001605, BE963066, BE927049, BE552037, BE693959, BF755714, W72821, AA482202, BE390685, AI811104, AI923908, BE747439, AI955210, AJ241672, AU144932, AW005356, AU144433, W72822, AA610244, N57854, AA776240, BF951835, AI869691, BE328437, BF035080, BG230654, BE465633, AI097401, AA136144, AA159091, BF772398, H28893, AU144948, AU145034, AW572297, AW029577, AA599002, AI913174, AW589507, BF038577, AA432194, AI912350, H90336, AW026450, AA676743, AL573143, N64095, BE514326, AW173719, AI439590, AL246619, AI126189, R72806, AA136030, BF949282,</p>

					W15338, AA632265, H27347, N62095, AW338014, BE350226, AW732278, AA082176, AW262961, H03195, AA046611, AA046519, N57753, AA359539, AW080405, AW342043, BF884225, BG056569, H45880, BF128922, AA977345, AA583776, AW170642, AA648676, N59720, AA678502, H24394, AA431174, AA809373, H62505, F33112, AW149167, BG015045, A1032839, N88118, A1245126, W04418, H03994, AA848077, AA910294, AW016492, AW965640, BE046154, R16997, AA350391, H28894, A1916065, R44633, AW956574, BF800906, AW062887, AA355730, A1203820, AA357099, AA344508, AW166715, AA286791, A1559841, A1873982, BF870405, A1423324, BF056205, AA854147, A1857537, AW581203, AW874219, AA598543, BE393762, BF870399, A1590119, AA724015, A1243914, N76000, H09529, AW021036, AW581204, BF337471, R44522, BF337296, AW271164, AK024469, AK001190, A1117455, AK001032, AK024387, AX026954, AK026767, AC004466, AF207749, AF239243, AF207748, and AF006602.
HELGD39	722	867938	1 - 1537	15 - 1551	AL530772, AL530771, BE792595, BE877347, BG030931, W56141, AV715011, N98792, N66589, AW079529, BF342140, D80121, D81911, AW243564, N98659, AF281037, AV723956, AV723552, AA917457, BE568485, A1805853, A1698508, N40175, AA382587, D80114, A1364248, U54720, F13480, T75157, AV750126, BG031735, BF327171, R58444, BG031897, and BG009932.
HMACX92	723	867995	1 - 1382	15 - 1396	BF056112, A1741818, A1953998, BE273896, BE222929, AA573827, BG169688, A1742027, BE789282, BF064129, A1344703, A1687918, A1738917, AW613258, A1241423, BE963955, BE619177, BF064050, AW058506, A1307806, BF183045, BF512051, AV727483, AV726722, C16636, AW293247, BF588555, A1913588, BE619737, A1524349, AA320459, AV697863, A1971693, BF183639, AA581056, and BG151432.
HMKCV39	724	868004	1 - 526	15 - 540	BE871616, BF345349, BF038771, BE782687, AA447459, AW663327, R80068, AA251458, AW967618, A1693283, BG149181, BF921924, A1739035, AW438908, AW452847, A1401755, AW384844, and A1435334.
HINTOE45	725	868031	1 - 606	15 - 620	AW979048, AV646953, AV647046, BF001543, AA829001, AA837772, BE078416, AW979049, BE004426, AA779444, BE003973, A1039278, BE909311, BF691763, BE276845, AC018646, AC008154, and AB041549.
HCUFV69	726	868130	1 - 345	15 - 359	H95185, AW190988, AW406123, AA448360, BF849922, BF727066, N39858, W77951, AA251049, AA427650, A1160246, A1934824, BF726563, AA889989, AA682768, A1191820, AW675024, A1310399, AV405782, A1023098, AA448217, AW296041, BF726305, BE047922, H63613, AW966978, BE278148, AA609970, R71336, A1198529, A1936151, W72753, AA626729, A1563995, AA394208, BE392063, A1472143, AV692514, AV692507, AW327412, BE394872, BE256182, BE278754, BE790812, BE255594, BE902202, BE732267, A1535281, BE900112, BE783401, BE732506, BE902343,



					BF795894, BE731869, BG027322, AI200278, AA150562, AW406119, AI150142, AI863174, T32301, AI223083, AA845380, AW025545, AI769092, AI700344, T20007, AW575589, AA397909, AF115345, and AR077164.
HMVZ54	727	868140	1 - 1393	15 - 1407	AU118736, AW293360, AI434524, AI499675, BE888848, BF245032, BE871775, BE566947, N93884, N94583, AV749453, BE880103, W40376, AA045308, AA045414, T87913, BF372382, R02006, T87924, AW292609, T16957, R19146, R36561, H14428, H08949, AW962507, Z44239, AA329930, AW505256, AF125392, AC009303, AK021692, and AL080184.
HMSH94	728	868172	1 - 742	15 - 756	BE394322, AA521310, BE729533, AV705577, W22173, AI687970, AW577768, AF093097, and AL139286.
HAPTE80	729	868238	1 - 1214	15 - 1228	AL537045, AL536834, BE879928, AU135328, BG033356, AW960438, AU135327, AA305278, AA131283, AL521228, AL526185, BE897307, AA223833, BE892304, BE092522, BF096165, BF096105, BF096153, BF347944, AA449125, AW500067, BF096068, T27291, BF382665, AA305730, R51476, AA380267, AV715181, BF096075, AK024325, and AL117573.
HSLJC72	730	868253	1 - 702	15 - 716	AA295856.
HWBCR21	731	868312	1 - 671	15 - 685	BE819467, AA723586, AA788738, AW296213, AW378236, AI823511, AW594593, AA341536, and BE819553.
HKAAU27	732	868368	1 - 1362	15 - 1376	BG164604, BG180396, AW959647, BF982584, BG032732, AU149097, BF975110, BF939657, AU148983, N52946, AI685016, AA451853, AI400616, BF572553, AI422792, BF149130, AA452053, F37309, AI187376, AI911398, AI122711, BE074240, BE164841, BE164845, AA918552, AI924579, AW602698, AW881997, BG028864, BF902665, AI470317, AA121637, AA299325, AA912424, AI888910, BE767422, BE164990, AW006694, T54223, BG112795, AU156585, C02302, BE880260, F27397, AA766056, AA436766, BE074233, AI631312, AW367900, AW367911, AW971740, AU131883, AW968355, AW972093, AW968356, AW968729, AW972091, AW972092, AW972090, AW969229, BF768873, AI431337, AI432644, AI623302, AI431351, AI431248, BF448552, AI432649, AI432651, BF589777, AI791349, AI431347, AI432653, AI431230, AI431328, AI432654, AI431354, AI432655, AI431310, AI431312, AI431330, AW081103, AI432647, AI432677, AI432661, AI432675, AI492519, BE672792, AI431243, AI432665, BE672742, BE672759, BE672719, AI432662, BE672767, AI431353, AI432672, AI431345, AI432674, AI431357, AW128846, AI432658, AW128900, AI431241, BE672745, AI431346, AI431255, AI431254, AI432676, AI432673, BE672748, BE672774, AI431340, BE672732, BE672738, AI432650, AI432664, BE672743, AI431307, AI431316, BE672749, BE672744, AW128897, AI431238, AI492510, AI492520, AI432643, AI432657, AI432666, AI431308, AI431247, AI431751, AI492509, AW129223, BE672644, AI431231, AI431257, BE672626, BE672625, AI431314, AK024273, AK022674, AF071317, AX030435.

HOSCI09	733	868369	1 - 672	15 - 686	Y17793, AX030436, AR071207, and AF064854. H24422, BF033026, BE177684, BF129845, AA113426, H08076, H08074, F11232, T10353, F07606, AI858374, R24547, AI871770, BE674285, BE217736, AI216499, AW468398, and F27252.
HWBAE15	734	868370	1 - 1326	15 - 1340	BF129845, AI871770, BE674285, BF033026, BG163231, BE217736, BE177684, F11232, F07606, H08074, H08076, T10353, H24422, AV728696, AA113426, R24547, BE298765, BF809160, BF699082, T05617, F17537, BE153364, BE153393, BG251842, AC007191, AP000348, AL022312, U62317, AL137800, AL133245, AC073898, AP001609, Z97056, AP001610, AC007956, AC006349, AC025588, AC005696, AC004967, AL133551, AC016612, AC008521, AC006057, AL109952, AC069539, AL122001, AL1353715, AC007546, AC005902, AL163285, AC005037, AC012519, AC005740, AL1353777, AC005225, AF215937, AC007899, AC003665, AC006538, AF217796, AL133512, AC006032, AC020913, AC007731, AL1355094, AC010203, AC005086, AB004907, AC008753, AJ009611, U91321, AF047825, AC005793, AC008543, AC005907, AL121712, AL121890, AL008719, AC005944, AP001725, AC068948, AC008536, U93305, AL353802, and AC006441.
HWAFN46	735	868440	1 - 588	15 - 602	AW501989, BF111126, BE141774, BE141517, BE544223, AK023817, AP002384, AP002384, AP001563, and AP001563.
HWAE191	736	868475	1 - 629	15 - 643	AA825353, T66878, AA897376, AA649011, AI393325, BE842821, AA682564, AA721355, AA721146, and AC002553.
HDPMO69	737	868484	1 - 1102	15 - 1116	AU138808, AV728468, AW969015, BE048846, AW510836, AW629173, AI652533, HI2665, AW269190, AA147148, BF431236, AI535668, BF218844, W95897, AA304566, R32911, BF209836, BF212248, AA729308, AV749742, AA147132, BF211489, BE085611, W95896, AU135009, BE501041, AA504164, AA059473, BE961019, M85685, AK002135, AC007321, and AK001834.
HELM41	738	868568	1 - 2417	15 - 2431	AL515170, BE900508, BF035260, BE782214, BE562114, BE891223, BE783151, BF979632, BF035270, BE546559, BF341478, AI916571, AA394306, AW958583, BF901404, W68578, BE908501, AW996502, AA112082, AA740704, AA398509, AA485137, AA503393, AI972521, AA171926, AI804548, AW473940, AI248638, AI554193, AA446833, AI024593, AA923417, AA436028, AA600001, AA524435, AA679078, AI245461, AI074076, BE175878, AA526133, AI654900, T78478, BE858346, AW968708, BF061908, AW972266, Z45100, T79172, T95309, AA630683, H79782, H73984, T36049, H58709, AI735742, Z40839, H72088, AW079174, AA043890, H73940, AI037293, BF994044, Z42965, BE547610, AA172115, AA355490, AA045424, T36102, AA355493, T90943, R30896, BF980274, AA706600, AI139588, H79816, F02443, AI049695, AA670203, AW972906, T79255, C15943, BG165380, BF903644, R83308, AA446832, AA045337, AW878052, Z43759, R83403, R60799, W68579, BF754181,

HEQCA95	739	868765	1 - 1213	15 - 1227	F03028, R60293, H79875, AK000078, AX048101, and AL390156. AU138666, AI766023, AW300606, BE98039, BG117350, AI808094, AA457689, AW449733, AW449735, AA315507, U46320, AW779136, BG168133, AW468714, AV742145, AF150370, AU138203, AW452512, AU136379, BG251270, and AK002121.
HAGEG94	740	868792	1 - 1229	15 - 1243	AL525600, AW752022, BE566973, AW956032, AI419335, BE855710, AW956034, BG170308, BF690943, BE886479, BF245951, BF246873, BF516501, AL530600, AA488237, AL525552, R51690, BE763685, AA779057, AW754219, BE622742, BG054804, AA296478, AA370118, AA296248, AV749791, AW796061, AW796020, M96621, AW972529, H24149, BE622429, and AL137013.
HWAFX90	741	868808	1 - 986	15 - 1000	AL519643, AL519642, BE440008, AL519895, BG170723, BG025562, BG252431, BE784090, AL527780, BF972946, BF182781, BF028243, BF036389, BE253888, AV711565, AL527781, BE876001, AV734719, BF217992, BF701098, BF195663, BE380086, BG165235, BF697509, BE739243, BE883738, BE904995, AV721356, BF440019, BF440052, BG033941, BE894109, BF516510, AA312807, BF691779, BF666742, AI978624, BE728826, BE866570, BF726887, BE543360, BE739508, AI950951, BE961088, BE387517, BG255156, BE874970, BE280989, BF684507, AW055058, AA127810, AI423011, BF248231, AW953806, BF111041, AI983698, AI149371, AW079935, BE778879, BE463645, BE780848, BF972692, BF244338, BE878075, BE732828, AA639784, AI088520, AW055150, AA035465, BF971153, AI984009, AA974414, BF593734, AL519894, AW152458, BG105762, AW162019, BF667921, AA687553, BF681153, AW173349, AA740167, AA831991, AI354756, AI453530, BE675483, BE781977, BE390815, BE877161, AI719084, AI719711, AA305409, AA887421, AV759501, BF666828, BE736231, BF213309, BE563797, AW261898, AI631124, BF036674, BF033829, AW575396, BE779179, BF026407, AA643698, AW152523, AI342341, AI361959, AI336152, AI954927, AA837569, AI887169, AI142474, BE782483, BE964765, BF679234, AI953987, AA743522, W52852, AI359968, AI144474, AI609114, AA922338, BE513040, AA088249, BF243942, AI143580, AW051781, AA121482, AI127719, BE778881, AA120783, BF939832, AA719147, BG054734, AA455701, BF239121, AI493197, AI685961, BF941505, AI337879, AA830816, BE960859, AI087247, N89901, AA507014, BF725812, AI467977, AA832498, AW044054, H96478, AI040901, AA024762, AA326688, AA224326, BE300789, BF687644, W28003, AW151050, N25654, AA309712, AA654503, AV751872, AI291251, AA781298, AA045679, AA772431, AA865206, W80466, AA910216, AA229940, AI188805, N23533, AI680538, N30499, AA976499, BE620168, AA120782, BE276608, BE254564, AA181577, BG254402, AW239079, AA176232, W26915, BE741827, BG254889, AV723953, N34255, AW160399, AW304280, AA132426,

AA648271, AI302349, AA974887, AA723429, BE834190, AW407963, N21267, N79707, H84952, AI680260, AW337755, N79791, AA505915, H70394, AA846240, AI190500, N34854, N89904, H74189, AA455649, AA938653, R57473, N33152, W60079, AA876647, AA223846, W31972, AA857060, AA214719, AA332809, AA836918, BF084806, N42142, R07414, AA505366, AA570008, AA574162, AI189939, W80575, W76420, AW407906, AI873685, AI573053, AI538660, AA329750, AV737407, R97376, AA299454, AI245848, AA230126, AA176320, AA372693, AW517926, BG113179, AW390100, AI362342, AW407596, AL024498, AF151028, AL358777, I48978, AF200464, AK026045, A65340, AF110640, AL117435, I89947, I48979, AK000323, AL389935, AJ299431, A03736, AL162004, A08913, AB049892, AF091084, Y11254, A08910, A08909, AI222093, AF116631, AF017437, AF087943, AL117394, AL049300, AF130055, AJ000937, AF090903, AK025772, Y13653, AF119899, AK000445, AK026959, AK027213, AF242189, AB047904, AF130059, AK024538, AF113690, AL390139, AK026927, AF116691, AK026086, AL137234, AB052200, X63574, X72889, AB028451, A08907, AF113677, E05822, AL133080, AL049314, AF210052, AL137459, AF060866, AL117460, AF125949, I89931, AL050149, AL096744, U42766, AR087170, AL122050, A77033, A77035, AF090900, AL110225, AF146568, A08916, AF116682, AI2558, AL050277, AF111851, AF130075, AL117457, AF130110, AX019230, AK025410, S78214, A65341, AF111112, Y10655, AK024524, AK024588, AF097996, AF119875, AK025967, AK027082, X80340, AK027204, E07108, U87620, U66274, AR079011, AF130082, AR079012, U35846, AL137479, AF061943, AL050146, AB034701, AL137283, AJ238278, AX019229, AF057300, AF057299, X96540, X82434, AF116610, I33392, AK025339, AL080110, AK026741, AK000212, AF130105, A07647, AL359618, AL137550, AL355701, AR038854, AK026534, U49908, AK026583, X62580, Z82022, AX045627, M85164, AK025435, AL080234, AK025632, AF130077, AK025484, AL137521, AL162002, AK026542, AK027116, AF132205, AK026528, AK000137, AL137271, AF118092, AF119909, AL110296, AK025084, AL133557, AF130087, AK025254, AF177401, X83508, I68732, AX026824, AX026823, A58524, A58523, AF175983, AK026592, AK026629, AL122110, Y16645, A08908, AL359622, AL050024, AL133640, AK025119, AK026630, AF026124, AF151109, AL049452, AK025465, AK026526, AF104032, AF271350, AF130104, AL162083, AF113689, AL137557, AF113699, AF106827, AL353957, AL389982, AF080622, AK026950, AL133075, AL049466, AL133016, A08912, AL050108, AL157482, A76335, AK000486, AK026608, AL137538, AL080118, AF113019, AF130066, AK024992, AB048953, AR000496, AF119865, AL049382, U39656, E02349, AL050172, AK000083, AK026784, AF119860, AF153205, AB051158, AF116602, AX020124, AL050116, AF125948, Y07905, X65873, AJ006417, X53777, A58545, AK026600, AL133560, AF069506, AF119871, AF217987, AJ242859,					
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HHFGM33	742	868870	1 - 1222	15 - 1236		AL529082, BE731516, BE909961, BE898664, BE279073, BE279785, BF668722, BE894320, BE278536, BF244781, BF027181, BF701003, BE392213, BE727230, BE568580, AW373723, BF792763, H81859, BE244264, BG104528, BF668501, BE147718, H90784, W52746, AW969137, BG261359, AA505108, AA129132, BE936240, BF920612, AI741911, BF902714, BE562634, BF897915, AF148713, AC004893, AL121890, Z78022, AC018719, AL354720, Z85987, AL133344, AC006330, AL159977, AL121903, AC007685, AP001725, AL122010, AC007201, AL137162, AC005736, AP000691, AC004753, AC009470, AL133163, AF001549, AL162742, AC005222, AL050307, AL161936, and AL117352.
HTEQK83	743	868928	1 - 1147	15 - 1161		BF314692, BG168000, AL526398, BE882561, BE274311, BE256747, AV706890, AV714212, BF184919, BG033184, AV710849, AV711299, BE744054, BG026452, BE263146, BE901483, BE395509, AV729227, AV703060, BF184921, BE873419, BE300041, BE797162, BF793607, BF205067, BE299748, BF979365, BE741391, AW411242, BE798386, AW732355, BE298381, BE874878, BG167463, AV702882, BE743248, BF338865, BE900593, BF312111, BE879936, BE019478, BE019582, BE214422, AV761917, BE250013, BF977274, BF692504, AW410757, BE738991, AV705448, BF206919, AV729377, BF311171, AV713872, AW732592, BF979547, BF203314, BF664876, BF304324, BE273055, BF382130, BF686806, BE622069, BE735905, BE780766, BF203650, AA206647, AV725124, BG260744, AA399320, BF183197, BE300151, BE544326, BF686322, AL547302, BG171603, BE256192, AV708802, BF691137, BF237753, AV711178, BF674867, AL039105, BF680148, BE732414, BF311434, BF679450, BE311411, BF106427, BE293606, BE812332, BF105082, BE812322, BE207590, AV751860, AV712080, BF667711, BF671336, BE304857, BF106230, BG249490, BG105139, BE313176, BE872120, BE272352, BE263530, BE261507, BF700537, BE262277, AL533538, AI908145, BE259759, BE314894, AW956187, BG248799, BG036583, AV723237, BE736928, AA121281, BE616007, BE378338, BF692699, AW952981, BF700891, BE531040, BF383142, AW583199, BF725953, BE019519, BF685977, BF675318, BE207583, AV763995, BE899308, BE263230, BF304301, BE253983, BG121826, BE732461, BF698766, AV703358, BE394536, AW935221, BF671053, BF219801, BE931905, AI750601, BF310727, BE812328, BF695636, BF700635, BF303816, BE270150, BE812386, AW966411, BF213101, BE512851, BF308955, BE812361, BF665347, BF977857, AI815872, BE531261, BF683092, AA314228, BE882480, AV758303, BE812254, BE615056, BF694069, AV393740, BF932221, BF666891, AV736809, BE392456,

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HULFK26	744	868929	1 - 1445	15 - 1459	<p>AL526398, AL520448, BE798386, BG168000, AL520449, AI761733, BE300041, BE797162, BE274311, AV714212, BE263146, AI205262, BE256747, AV761917, AV729227, BE743248, BE299748, BE744054, AW411243, BE739768, AL518545, BF686322, BE299455, BF793607, BF312111, BE616007, AW411242, BE901483, BE735905, BE300351, BF237753, BG033184, BE300151, BE741391, AV725124, BG171603, BF314692, BG260744, AI816027, BE293401, AV763995, BG026452, AI345970, AV713872, AI796658, BF686806, BE879936, BE613254, AV703774, BE383010, AI027545, AW264183, BF338865, BE882561, BE531040, BE250013, BF205067, BF979365, BE253983, BG167463, AA634102, AL526586, AA886430, BE868019, BF691137, AI922211, BE544326, BE732414, BF970440, AI986118, BE615056, BE780766, BE263530, AI547302, BF037134, AI687320, AW519081, AI951618, AV734330, BE300223, BF183197, BE273055, BF680148, BG167042, BF340686, BF979919, BE900593, BG036583, BE873419, BE622069, AV703060, BE019478, BE784936, BG248799, AW129733, BF311171, AV706890, BG105139, AV708802, BF977274, AA528020, BF692504, BE874878, AV705448, BF311434, BE207590, BF206919, BE899494, BE256192, AV711299, BF674867, AW935221, BE882480, BF664876, AW410758, BF203650, BE019519, BE272352, BF683092, BE899308, BF303816, AW410757, BE299639, AW190116, BE395509, BF203314, BE392456, AV702221, AV711178, AW732355, BG104919, BE207583, BE872120, BF310727, BF304324, BE261507, BE293606, AA609994, BF214422, AA399320, BF213101, BF979547, BF316198, AV751860, AV710849, BF184921, BE262277, BF671336, AW410173, AW410633, BF685977, BE531261, BF700891, BF692699, BE298381, BF980170, BE313176, BF219801, BF184919, AA430284, BE396053, BE164388, BE736928, BF700537, AV703358, BF106230, BE512851, BG249490, BF975889, BE019582, AA165559, BE314894, AI742313, BE270150, AW393740, BE812386, AI922847, AI720170, AW732592, BE349149, AI924169, BF679450,</p>

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HUSZB06	747	869057	1 - 1066	15 - 1080	AL536589, AL535106, BG115055, BE906891, BE906503, BE379550, BF346674, AL528592, AL521963, AL535451, AL521084, BE901021, AL533206, BE891675, BF182949, AL522670, BE791682, AL527097, BF982052, BF347076, BG035331, BE780791, BE385628, BF970413, BE737462, BF686528, BE884989, BE389700, BE386485, BE790670, BE390180, BE388422, BF797693, BF347446, AL533388, BE890212, BE298811, BF568099, BG026669, AL536490, BF035350, BE389156, BE272650, BE544039, BE868244, BE315275, BF339003, AW410248, AL523125, BE294467, BE294064, AU126624, BE789843, AW402690, AA447347, BE396268, T08078, T35640, BE262939, BE260488, BE731085, BG178245, BE279532, BF317044, BE742386, BF529863, AA324356, BE257953, T35634, T35560, T35607, T35803, T34460, T35580, T35645, T35561, Z42226, T35564, T35562, T34266, BG001368, BF765773, AA853527, BF204198, BF808207, BE813627, AL533664, BF986410, AA319835, BE162527, BF205431, BE791521, BG001371, BE313053, AL524249, BG250732, BE788649, BE394960, AW896073, BF305720, BE299829, BF964045, BE171496, BF839704, BE836221, AW882314, AW948539, BE798645, BE843323, BF973295, AA493816, BE617062, BF839955, AA130797, BF973329, AW277076, AA367789, AF192559, AF176006, AK022783, AF189289, AF176007, AF192558, AF151822, and AB040292.
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HUCNW4 7	749	869091	1 - 462	15 - 476	A61271, D50410, and A61272. BF530011, BE782627, BF207216, AW068570, BE260758, AA252638, BE293073, BE781053, BG258855, BF528620, BG167020, BE793723, BE548064, BF510254, AW293303, BE904628, BF510253, BE900278, BE901809, AI751982, AW247361, BE261852, AF285631, AF224721, and AF295102.
	750	869128	1 - 673	15 - 687	BE887724, AU151411, BE671707, AA299466, BG260801, H50648, AI473819, AI268973, AW083008, AW511853, AW044568, AI066726, AU154867, AA492456, W58205, BF889232, F17079, BF002089, AA919151, AA600292, BG163914, AA767229, AA694587, C20945, AA663270, T67407, D12014, AI868238, BG107875, BF738382, BE621868, AW958229, BE962034, AU157747, AK023005, AX002999, AK001777, and AX002997.
HUSYN11	751	869192	1 - 5127	15 - 5141	AU135474, AU135750, AU908403, AI675872, AV694182, AI908399, BE878645, BE280585, AW978153, AU132961, BG034303, AV714437, BF528893, AW607520, BG033669, BG248915, AI804463, BG034179, BF448642, AW182870, AA404309, AV728551, BE872880, AW373516, AW504478, BE894168, AA676790, BF674864, N32577, N32803, BF752660, AW005424, W87853, AI038081, BG231688, AA404673, AV681660, BG236306, AA478157, AW978733, BF593633, AW367495, AW469773, AU151555, AA478158, AI334288, AA776795, N21012, AI740920, AA596078, AA514413, BE541833, AI203592, AI863025, AU138785, AI094116, N54977, AI961208, AA037312, AA306403, AI351376, BF440035, N20607, AI275548, BF434376, AA280706, AI089377, AA878564, AV712450, AW205723, AW391127, AA721084, AW205251, AW391220, N30775, BE165784, AI034410, N76309, AW166981, AA441970, AI890470, AA815121, AI823712, AI418160, AI123770, AI570590, AA722447, AV728070, AI524309, AI148454, AI222245, AA494500, AA687433, BF819182, AI625371, AW510724, AI826875, AA832312, AI568800, AI148591, BG163445, AI052074, AI095791, AA262028, N68202, W90305, H98626, AA133659, BE904783, AW170342, AI926551, HI5451, AI984549, AW131409, AI220222, AA281109, AI038118, AI499297, AI141630, W87683, AI634194, AA418887, AW089998, AI364477, BG059803, R71346, AI033612, AV728072, BE222263, W05504, AI472099, AA133660, AA281206, AW629361, R13704, AA479846, AA127057, AW139299, AA044039, AI347234, AV714503, AA252565, AI266272, AA932329, N68289, AW450392, AA043986, AA628282, AA687489, BF912029, AA287753, AI523115, AI589746, AA948045, BE896310, AA281605, N40207, AA545796, AA826530, W60297, H04073, AI266054, AA742688, AW874035, AI222661, AV660605, W90615, N70622, AA41971, W68541, AA863241, AI024654, R66965, R43940, W60388, BE164759, N68275, AA974135, AA010095, N80986, AA321165, AI128449, AW408660, N75116, AA255740, AI184331, AA025466, AA418888, AU129441, AA810069, H69110, AA001310, R81340, AA431370,

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HTADJ34	752	869206	1 - 608	15 - 622	BG032936, AL529660, BF309824, AL533175, BF663962, BE906705, AL528013, BE905601, BE314426, BE910075, BG120898, A1133427, BF726607, BE548803, BF976430, BE735736, AL529659, BG111586, AL533335, BE255716, BF971439, AA350360, A1372759, BF314488, BG032361, BG115873, BE394389, BF343597, BE778654, R88070, R18809, A1669449, AW407842, BF871214, BE573284, T85919, BE837574, W23910, BF932320, BF871342, R60434, AA223799, AW578878, A1452722, AW973135, AA536032, BF922099, AA328758, W24575, Z42333, AA535292, BF572704, AW973158, AW581672, W42907, BF237786, W05329, AW853389, BF914316, AA332091, AA333563, AA083263, BF093554, AV685016, A1810976, BF924630, BF848898, AW952572, AL134735, T31859, AW748084, AW175970, AC005041, U40825, U79457, AX017996, AX017855, and AF001797.
HTXPR30	753	869227	1 - 3748	15 - 3762	AL523234, BE277614, BF792792, BE798588, BE743378, BG259716, BE740523, BE742964, BE560252, BF968359, BF309750, BG026957, BG167005, BE792174, BE791176, BE547066, BG106897, BE733679, BE548489, BG034120, BF970500, BG034687, BG117402, BF984560, BE386797, BG118211, BF529579, BG165484, BE900222, BE397335, BG105090, BF688488, BE267056, BF689297, BE561533, BF984177, BE560962, BG250210, AV714529, BF347175, BE312641, BF027475, AV701666, BF027171, BF313470, AW245768, BE398145, AV722641, AW958030, BE513638, BE274303, BG251365, BF203901, BE884204, AL523233, BE396391, BE264673, BE867414, AW362755, BE313905, BE269480, BF204923, AL119378, BE268114, BF732341, BF304528, BE268792, BE544024, BE409799, BE384796, AA045263, BE268028, BE268746, BE543859, BE878886, BE514134, AV707123, BE269548, AA045271, BF125631, AL045496, BG167068, BE270036, BE566623, BE312362, AL045495, BE259992, AA903403, BE2666793, BF197223, BE019096,

<p>BG16782, BF214545, A1339454, AW029527, BE205856, AW250913, AA164451, AA85277, BE300753, A1908108, BE297632, BF589059, AL119503, AI191930, AA182411, AW316673, BF125480, AI921045, W778845, AI829022, BE379071, AA164450, AW299297, BE300927, AW614753, AI610883, BE513463, BF365731, AI445051, BF035636, BE782290, BF109667, AA130635, AW952030, AA918812, AI908451, AA126324, AA678957, BE294061, AA332552, AW245410, AA612932, AA492416, AW627774, BF109098, AI886004, N98338, AI191764, AW662860, AA130738, AV646219, AA588196, W40181, W45103, W47354, AI904557, AA970030, W22446, AA721026, AA480644, AA581717, AI301032, N67032, AI582542, AA055331, AA055928, AA134781, W39747, AA996076, BF085160, W27134, AL119343, AA729341, BF919623, AL041072, AW450039, AA121694, T09284, AW406890, AA121748, AW837758, NS2493, AI001861, BF088805, T69950, AI282693, AW243796, R15183, AA926791, AW376932, AA169393, F24695, AA628284, AA381549, BE261592, AA779147, BE264749, N74736, H22082, AV688220, AW364710, BF767634, AA303910, AA381375, AW207693, AA767007, R41634, AA379254, H22010, H14748, BE046329, AV693994, AA354765, AW250152, AA332426, H99911, BF379382, BE935311, AW191912, AA514580, BE935477, BE935480, BE935354, AI205733, AW793226, R23631, AA508005, AA379307, BF884575, AA338000, R51283, BE935387, AA333114, BE503420, AA780703, T98953, AI824525, AI270434, BE843833, BE935543, BE935522, W47355, BF767637, T69902, AW631090, BE938459, AA768656, BE297864, AA984502, AA296844, BE935544, BE935506, N51671, BE843828, T99004, AA297762, AA251977, AA570274, AK025085, AC005343, AL031005, AC006115, L05367, AL034376, AC006255, AL133445, AL049540, AF289077, AL079342, AC006530, Z49258, AC003663, AC009024, AC007529, AC006139, Z72001, AL080314, AL365335, AB041731, AL138805, AC011475, AC022079, AL136137, AL157433, AC002394, AP001054, Z93015, AC004526, AF130103, AC007383, AC005540, AC011451, AL078581, AL049538, AC008392, AL354861, AC024082, AC004790, AC005837, AC005968, AP001207, U85195, AC007386, AL355497, AL121916, AC006597, X69951, AC005091, AC004383, AC004231, AE000658, AL050318, AC009229, AC020552, AL354857, AC005015, AC004971, AC087225, AC005221, AC005080, AC003010, AC005476, AL078591, AC006270, AF254983, AL139099, AC005940, AF043945, AF091512, AC005225, AP001695, AC007537, AC007597, Z97054, AL136312, AC002326, AL138478, AF243527, AL163201, AC005695, AC004878, AC009086, AC005288, AP000030, AP000133, AP000211, AL133517, AL121774, AL110502, AC006117, AL022345, Z83843, AC005048, AL096840, AL157688, AC007425, AF205588, AL136969, AC019171, AC005911, AL008729, AC007358, AL078644, AL162584, AL021154, AC005291, AC007405, AL031120, AL049795, AL109839,</p>					
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HAHDP69	754	869268	1 - 2441	15 - 2455	AU125824, BE731974, AU130807, AU142207, BF313944, BF038261, BE727451, BG252711, BF219934, BE799896, BF309959, BG026489, BE297454, BG033811, BE254272, BE382641, BG031312, BE261741, BG025009, BE794649, BF981584, BE267372, AU138339, BG117645, BE621374, BG252434, BE271823, BG167058, BG118251, BF316661, AW373886, BE266228, AU126282, BE257359, BE538081, BE734266, BF306299, BF128014, BE295721, BF982936, BF982333, BE278482, AW176998, BF127515, BE264504, AW352293, AV738443, BF998212, AW247257, AV740960, AI343362, BE268485, AW250672, AW732418, AA083016, AA401799, BE255644, BF796849, BE709909, BE263521, BF958026, BE544266, AW245808, BE266850, BG250411, BF571087, BE258721, AA429221, BE537465, BE092146, BE315473, BE273645, BE089857, BE179058, BE222303, AI130791, AA305971, BE089904, AW402350, BG121978, BG116138, BE265004, AW296237, AV734399, AV735149, AA158611, BF876411, BF206198, BE261081, AV750274, W52606, BG025523, BE694915, AW835899, BE790738, AW835904, AW936722, BE280267, AW385544, BF304422, AW936693, AW835898, F01154, AW835901, BF948346, AW385551, AW936807, BF819980, BF948436, BF821277, H09492, D52582, W17160, AA331459, W22325, BF934936, H63452, AW385546, AA309755, AL042085, AI832120, AA378611, BE736916, AW936694, BF876478, AA135074, N64094, R19130, AA115830, AW835893, AA354633, BG177379, AA456218, AW380838, AW835881, AA010498, AW803935, AW853878, BE774072, BE019884, BF885497, AA176843, BE774065, AW936716, BE696918, BE926320, BE926326, BG121709, BE774059, BF923849, BE774037, AL041707, BE696832, AA114056, AW799523, AW603524, BE937638, BE816524, BE728773, BE774040, AI902359, AW406741, BE070056, AW500598, AA114057, AA629928, BE774036, AW385540, AA130706, BF948379, BF948380, BF948277, AA007392, BF948384, AA631260, BE774039, AV714935, AV718134, AA158612, AL522965, BE251068, BE693350, R59118, BF948344, D87686, AJ001443, AK001297, D13642, and AL110251.
HTXBF16	755	869270	1 - 636	15 - 650	AL035406.

HTXLG13	756	869344	1 - 1567	15 - 1581	BE937819, AA215796, BE223072, BF793123, AU153440, BE840509, AW778983, AI817574, AA706902, AI497635, AA701915, AU153529, AW296768, BE840626, AA164945, AI887578, AU151336, AW148945, AW375027, AA732352, AA192653, AA948678, AA405773, BF091232, AW081725, AA292731, AA215633, AA447225, AA292078, AW173636, AW440594, AI199935, AI684146, AA292115, AW173732, AA293169, BF823630, AI362925, AA292159, BE930920, AU150023, BE670561, AU147034, AI023706, AA292059, AA814228, AU151502, BE222802, AI038756, H57926, BE044117, AA405754, AA070704, BF934811, AA070913, AI493651, R47279, AI214205, T83843, AW439718, R74544, AW511428, AI436258, AI282932, AW473874, AA999905, AI040960, AA872724, AI023396, AW009887, R74543, AA398325, BF091229, R74500, H28937, H30687, AA733036, BE243381, R74501, AI219036, AA349389, AA877383, R74530, AV746982, AI027649, AA293884, T17337, H21545, AW340820, AA862889, C00925, BF091286, R74529, BE841272, H21544, AI247646, AI05018, BE840634, N79235, R86065, BF091248, AA831087, W03752, AI351390, BF849769, AI955038, BE937788, AW297184, R86195, AI042487, BF091255, AI254738, AW082471, AW575489, AI691154, AA745128, H06327, AW602370, AW602425, BF929233, BE719041, R90819, AI886235, BE819242, BF766555, F21352, AW883808, BF091289, AK022564, AK023200, AK024603, and AI135818.
HEOMD27	757	869349	1 - 1700	15 - 1714	AL120221, AU143329, BG177354, AW957073, AA929046, BE676233, BG251753, BF771339, AU154751, AU148393, BF593701, AI041117, AA447828, AW027408, AW593254, AU160692, AI827377, BE675177, AI095620, AU160434, AU153966, BF108426, AA812962, AA947740, AW024862, AI094081, BF969329, AW276606, BF771337, AI246685, AI374810, BF911523, AI381973, AI348653, AI339534, AA224314, R64026, BF771340, BF907066, BE963927, AI824989, BF830502, R59084, BF907369, N94582, AA837844, R50098, H20695, AI913744, H60970, BE619603, BF907063, R59085, AI085257, H20694, AI907559, BE773568, AA224209, R76292, H18604, R50099, H00524, AA676578, T89733, AI581321, H18603, AW014667, R43106, AA343706, BE811440, AA369223, BE773536, H00470, BE140194, AA888554, AI493568, AW806478, AA375338, AA295353, AW001701, BE467327, BE811436, AW751063, T89639, AA678432, BE673744, H05456, AW939219, AW062313, D29431, T89831, R17855, AI352410, AW505495, AI796304, T89913, W30873, BF510598, W85831, AW613969, AW134600, BE140246, T98428, AI311385, AI866382, AI493988, AI863636, AI424247, AI674557, AI609519, AI247954, AI341213, AA749373, AW407652, BE551706, AW274877, AU149169, BE464887, AA749425, BF916345, AI682370, BF980268, BF690328, AW939325, AA953251, F30710, D20992, BE935077, BE164547, AK025933, AX048080, AK024061, and AB014592.
HTXHA69	758	869387	1 - 394	15 - 408	AB040900, and AC023790.



HFTCV95	759	869639	1 - 1900	15 - 1914	<p>BF690125, BF529580, BF027085, BE742068, BE871017, BE409727, AW978455, BF337859, BE732859, BE910165, BE292923, AW958287, BF689895, BE746295, BE278963, AI479722, AW965937, AI523073, AI707816, AA864466, AI391489, BF975253, AA393872, AW005319, AI742716, AI310144, AI378194, AV650800, R77016, AV650218, AW057821, AA150070, AW002940, AW085680, AA393871, W47099, AA730622, R05506, BE958347, W47223, AA426572, AA449214, AI635750, W04693, AI269594, AA149962, AA962664, BF799538, AA372202, BF701263, AI609046, AA449215, AA310756, AA830449, R05612, AA005142, AW801034, BF934853, BE672910, R52299, AA361396, R47992, AI587091, AA463768, BF247445, AA425098, R48107, H42297, BE772021, H19930, AI469567, BF129114, AW197986, AI269611, AI912860, T16035, AA135676, AI074941, AA463715, AK025830, AF151821, AC004236, and AB015724.</p>
HTEHC92	760	869786	1 - 2617	15 - 2631	<p>BF341928, BF341966, BE873145, AW961717, AI910855, AI819835, AA781124, AW305005, BG121749, AI857662, AI024636, BG122356, AI916781, AI970596, AI863009, BE672071, AV722622, AW293479, AI049685, AI121112, AW341408, AI122833, AA969846, AI039333, AI990539, AW817588, AI651123, AW193556, AI498086, BF834700, R26882, H79471, AA219158, R91091, H17608, AI039445, R91092, R31387, R23518, AW803046, BF109077, AI142857, R10037, R32884, AA347569, BF834534, M85476, AW274689, BF475648, AW772243, AW663642, R27113, AW104356, AA725854, AW590613, AW511169, AW002471, BE251884, AA935275, AI636784, BF361654, AA219015, AI066606, AW086470, BE251491, AI016503, BE255463, AW294439, AI204388, BE699305, R44650, AA993995, AW950531, AW949530, AW961373, AW959982, AV706136, AV704490, AV704611, AV729316, AW966684, AW967372, AV728199, AW960406, AV702110, AW958225, AW959275, AV727047, AW963866, AW962367, AV703591, AW952176, AW951793, AW963463, AW954413, AW957517, AV653846, AW963234, AW955139, AV726572, AW955904, Z40219, AW963895, AV706991, AV701876, AW960271, AV703187, AW963644, AW957428, AW960611, AV708035, AV702814, AV705803, AV702402, AV653872, AV707705, AV728289, AW955629, AW964203, AV692197, AW952184, AV726742, AV725930, AV727637, AV705607, AW965869, AV706758, AW963641, AW950143, AW950018, AW951740, AW950874, AV726755, AW960606, AV649120, AW951182, AV702146, AV704029, AV728929, AV729285, AW963804, AW954000, AW964040, AW963616, AV694684, AW953809, AV652026, AV702738, AW950520, AV707067, AW949712, AV692939, AV687015, AW953797, AW964036, T17285, AV649566, AW955683, AW953788, AV658162, AV698347, AV709775, AV707451, AV705282, AV707238, AW960468, AW966167, AW962713, AV706910, AW962389, AW962394, AW950217, AV729272, AW957653, AV708847, AW949521, AW961234,</p>

					AW950683, AV727618, AV727782, AW958106, AW958109, AV708091, AV707949, AV706992, AV708850, AW952346, AW967188, AV655793, AV648623, AV704740, AV649112, AV701613, AV727101, AV705020, AV701844, AV707686, AV703465, AV659189, AV729411, AW952228, AW950333, AV646022, AW954697, AW963405, AW951998, AV708590, AV707786, AW950608, AW951773, AV650367, AV707917, AV653285, AV707722, AV725027, AV704124, AW950078, AW950079, AW949946, AL121832, A62298, A62300, AX047063, AR050070, Z30183, AX009343, AX009341, AX009337, AX009335, AX009345, AX009342, AX009344, AX009340, AX009339, AX009336, AX009338, AX009334, AX047062, AX047064, A82595, A82593, U94592, U45328, AR025466, and AX046743.
HTFOL05	761	869816	1 - 2249	15 - 2263	AV727049, BF056023, AW516797, AU144270, A1673781, BF675450, AW958794, AA191718, AW001066, A1452758, A1889138, BE903965, A1439094, A1808481, AL079724, A1928350, BF571394, BE879403, AA253270, AA603507, W16714, BE463648, A1365498, AW026764, BG105355, AA570079, A1139312, AA961501, AA243104, A1084041, BE904011, BE819271, AA190360, AA180335, AA774689, BG109358, AW268592, A1697360, BF982538, R98554, AA179759, F06413, AA835693, AW236033, A1221750, N52047, AW183871, BF085199, BF085214, BF085204, AW866577, AA173396, BE765170, BF085200, H10017, AW004838, N95170, BE929608, AA749153, BF085211, BF085202, Z38897, BE929580, AA311801, AU117440, BF997451, AW393159, AA383798, AA173395, BE929612, T31821, T93325, AW393161, N79516, AW452727, BE939680, D20286, R69357, T94003, AA253142, W21556, AW961655, AA180477, AA179724, R98555, T25730, AV702798, A1888433, BE935911, AA323129, BE929588, AB033061, AF259792, and AK000921.
HTPDV70	762	869874	1 - 777	15 - 791	BF900391.
HLVGH73	763	869917	1 - 1048	15 - 1062	AW380333, AW962090, BF901077, BE149705, BF925182, BF925897, AA309454, BE149733, AA354389, AA310427, BF902114, BF925835, AV761537, BF379083, BF892477, BF925889, BF894249, BF925908, AA280188, AW834825, AW378128, H55711, H55275, AW968901, AA488785, H55713, A1540087, BF515947, H55730, H55366, BF892473, AL355092, AF237772, AL031595, and Z59132.
HCE3E13	764	869962	1 - 675	15 - 689	BE256960, BF689843, BE251008, BF971970, BF954615, AC004211, AB023048, AP000511, AK000511, AC005937, and AK025618.
HRAAH37	765	869969	1 - 591	15 - 605	AW406551.
HTOFB26	766	869981	1 - 937	15 - 951	BG033026, BE002788, BE002871, Z17411, AW751538, BE300404, AW374761, AL525326, AV654704, BE888159, BF333628, BE768267, BE904714, AV727782, AW029444, BF510595, AC018639, AC025594, A1133769, AF145029, Z82244, AL162615, AC010203, Z92546, AC007269, AF027390, AL356354, AL109823, and AP000353.

HMELR15	767	870005	1 - 2371	15 - 2385	AU125247, AU124729, BE796288, AU132990, BF307757, AU132120, BE731268, BF308625, BE779901, BE876716, BE904800, BE867838, BE734018, BE746159, BF568314, BG251630, BE890824, BE278108, BE621085, BE278622, BE295541, BE880191, BG250801, BG026638, BF317045, AW499914, BE884151, BF203603, BE279091, BE778966, AW409898, BG110739, BG249759, BE543483, AI819360, BE262059, BF934326, BE018065, BE019944, BF881187, AI743193, BF880136, BF973429, AI806720, BF800138, AW956011, BF838985, AA626610, AA043392, BF894489, AW804704, BE540252, BE544086, AA219394, AV703354, R72848, AW117312, BF816927, AA310746, BF835461, BF841065, AA099977, AA889684, BE720495, AV722701, BE720392, BE720379, BF931389, BF754176, BE883815, AA088522, R73312, BE933618, BE720483, H42783, AV687183, BE933622, W67985, BE720435, AI424278, AI952783, BF569329, AW401477, BE793891, AW751735, AI818791, W19612, AA182720, AA298507, AA909553, BF850467, AA376046, BF512499, BF569336, BF989403, AA331241, AA352279, AV653999, BE259778, AA337446, AA775865, AA297638, AW892623, AA338011, BE693901, AW409899, BE076659, AA282827, BE076660, AI191639, AA333259, W67997, BE965383, AA532370, BE621685, AI147862, BE076661, AV700970, AI354434, BF085023, BE074087, AU148528, AI161124, AA338006, BE158046, N90025, BF568306, AW975083, AA602476, BF880304, BF874370, AW379605, BE504743, BF109406, BE545793, BF919069, H70178, BG011223, AA806913, AW796724, AA172222, AI367063, BE152541, BE301471, AA031626, AI970697, BF990795, AI049515, AW512202, AA172024, AI826997, AW362620, AA099837, H41426, AI365592, AW366675, BE698674, AW609249, BF842231, AI225244, AK001264, AB033018, AX013139, AF161391, AX013149, and AX013140.
HTDAF92	768	870067	1 - 1147	15 - 1161	AU127191, BF979929, AW955120, AU134757, BF345787, AL517570, BG025008, AL521321, BE620538, AA312035, AA911739, BE735484, AL519144, AI791644, AI792322, R13983, BE260978, BG253245, BF316463, AI424010, BE312861, AL519143, BE622144, BF316355, BF310446, AW082869, BE382900, N56305, BG033446, AI422406, BF311837, H30676, BF206860, BF316399, BF237760, BE620107, F06133, BF979374, BE387546, R13816, R37777, BE383447, R13678, BE260695, AI732836, BE843761, AK002119, AK001377, and AF175767.
HTLIV78	769	870098	1 - 656	15 - 670	AA846864, AW590023, AI125243, AA446154, AW003474, AI200764, AA92083, AI139618, AA429664, AW137061, AA91813, AA923010, AI150169, AI825677, AI917106, AA429514, and AI035460.
HTLEI29	770	870142	1 - 1337	15 - 1351	AA861068, AW593346, AI026913, AI684805, AA447543, AA431984, AI017139, AI122717, AI476720, AI150286, AA918216, AW592970, AW294021, AI283570, AW181969, AI125548, BE044235, AA994056, AA974680, BE044229, AA628142,

HTLGX79	771	870181	1 - 2362	15 - 2376	<p>AI372028, BE044223, AW418643, BE041516, AA953413, AI218365, BF115492, AW873559, BE550422, BE044186, BE503483, AW104933, AA854988, AA992982, AA448525, AA335595, AW779121, AA909114, AA884883, AA926841, AA906221, AA970662, AA935622, AA917036, and AC005622.</p> <p>AL536757, AL536758, AL042983, AU143400, BE727484, BG252872, BG031940, BE785704, BE887872, BE390269, BE390137, BE388021, AL045894, AU158624, BF056616, AA142980, AI819718, BG163752, BF194855, AI769669, AI435917, BF125618, BG058584, AI683499, BF477736, AI766947, AA843640, AI765064, BE550279, BG105530, AW028135, AL046584, AW957620, AL045895, BF125846, AW275362, AA860928, BE550550, AA993233, AI190595, AI738798, AW779832, AW590297, AI572599, AI935527, AI804438, AW058541, AW029529, AI017749, AI372930, BE276936, AI189332, AI962393, AA148696, W73459, AI209218, AA143162, AI307654, AI935339, AI952693, AI476285, BF980380, BE693884, AI311787, AA653976, R54225, AI361263, BF222382, AA043920, AI209211, BF125504, AW779740, AW001050, AA579999, BE695026, AI810200, AA480212, AW002962, H02422, BF222839, AW197211, AI657161, AI655164, W73181, AA708450, AA770248, AI650304, AA351246, AI268468, HI3104, AW068342, AI093628, H45952, H26972, AI080281, AI675216, BE810810, AA351735, N36238, AI975630, AW195374, AA351734, AI708489, W31718, R51829, W31923, AI149045, AA351245, R32792, BF765176, AI640161, AW130677, BF951593, AW594427, BF196452, AI339439, BF475620, BG054629, BF991534, AI349086, AW188555, BF325577, AW374965, BE937265, AI382425, R32793, BF431410, BE255133, AA148697, R14459, AA295382, BE774959, AI968321, BE925663, BF932982, BF932991, BE925664, R51554, AA368550, AW370541, BE937703, BE255539, AL117579, AB020664, AK023823, AK024727, and AF153085.</p>
HHFOV07	772	870237	1 - 963	15 - 977	<p>AU118216, AU123576, BE276824, BE728814, BE728860, BE274926, BE730297, AK001186, and AK000997.</p>
HTLDO59	773	870276	1 - 445	15 - 459	<p>AI337031, AW511309, BE550431, AW665680, AW449681, AA719271, AI969740, AA883656, AA993780, AA385348, BF972424, AI480030, N78358, and AC008750.</p>
HE8TM62	774	870447	1 - 1096	15 - 1110	<p>AL521999, BE622768, BF690484, AI698117, BF001651, BE747970, BG033400, BE740980, AW504725, AI937627, AA836250, BF342438, AW407200, AW001591, AW340356, AA099298, AI493682, BF795323, AI709403, AW136099, AA884692, AW402012, R73180, AA101822, AW512103, BE622469, BF965636, BE301808, AI560433, BE276191, AI952405, AW242883, BE219169, AW613583, AA280546, BF507963, AW242742, BE966769, H89547, AI470888, AW407641, AI807734, AI589214, N93808, AA912887, AW961405, AW958094, H89361, AI279097, AA972232, AA328780, BF223988, AA536048, H50060, AA028131, BE708379, AW581195, AI798820, BF690452, BE965354, AW407607, BF337412, BE276432, AA054186, BF305253,</p>

HJBCS70	775	870457	1 - 856	15 - 870	BF032775, BG120184, BE277566, AW999145, BG058324, AF311213, and AC004905. BE619269, BF569300, BF568269, BE728171, BE394328, AV709676, BE619884, BE407733, BE904620, BE614514, BE966040, AW957440, AW965805, AI346019, AI924255, BE964249, AI088909, AA448390, AA781353, AA194605, AW195727, AI146972, AA150413, BF195047, AA448387, AI308750, AI498033, AA148813, AA804861, AI073753, AA740190, AA579960, AA773774, AI304463, AI244610, AA150136, AL523177, W84699, AA026446, AA401771, AI245270, AI348049, BG107464, AI160024, AW204494, AI240109, AI018032, BE044348, AI245908, AA782917, AL523176, AI167739, AI198405, AW079517, AA810700, BE614015, AW663670, AI350465, AW182756, AW207349, AA148463, AA908581, W79002, AA305875, BE392816, AA152187, W63647, F34275, AI023582, AA772649, AI698603, AA740373, AI245510, AI004632, AI198724, AI566264, AA194636, AA477201, AA353431, AA291758, AA477036, AA768998, AI459372, AA781769, AA479797, H69491, BE041338, AW074444, BE543534, BF755218, BF092121, and AA026249.
HTFMP59	776	870490	1 - 3153	15 - 3167	BE797817, BE740047, BE249825, BE731413, BE742680, BE899565, BE744369, BF206202, BE260523, BE900759, BE740025, BE898932, BE745851, BE747559, BE562618, BE798420, BE612623, BE262686, BE736035, BE892562, BE798176, BE746699, BF342707, BF036360, BE794270, AI813702, BG254773, AI858010, BE792899, BF304886, BE740206, BE799844, BF058200, BE899504, BE746134, BE744058, BE729297, BE747747, BE899090, BG254621, BF313114, BE868034, BE744203, BF057544, BF686112, BE883900, BE746982, BE745344, BE729156, BF315389, BE514860, BF316767, BE898561, BE741340, BE783861, BE747300, BE512910, BE740258, BE513511, BE898667, BF982904, BE613142, BE799326, BE798309, BE272303, BE272255, BF973236, BF116215, BF316102, BG031570, BE743586, BE382764, BG106263, BF684134, BE899075, BG179842, BF311770, BF446292, BF312984, BF207378, BF684980, BE618536, BF315301, BE746424, BF125963, BE271319, BE388914, BF343301, BE298819, BE388872, BE388290, BE263737, BE868239, BE293257, BE312341, BE387823, BF684685, BE304529, AI659085, BF446227, BF315133, BF593498, BE740304, AW172668, BE263041, BF127573, BF448040, BE746862, BE746704, BE743061, AI280120, BE746806, BE273053, BF058577, BF206439, BE741839, BE266352, BE741949, BE315306, BE390280, BE514722, AI309849, BF001534, BF982865, AI797756, AW295029, AI283577, AI344108, BF207401, AI283606, AI004750, BE792798, AI659873, BF061105, BF125191, BE255059, AI499709, BE312647, AW473221, BE858623, AI201666, AI365432, AA429716, BF724262, AA738487, AA401258, BF732718, BE391502, AI218825, BE302732, BE207216, BF435084, AI581116, BF341280, AI199756, AI29787, AI916162, AI971823, AI857673, BE222798, BE613355, AA101051, AL048737,

					<p>AI338174, BG031330, AI184489, AI673612, AI991138, AW954964, AI660555, AI923191, AI279886, AW575745, AW071702, AA610862, AI863883, BE293430, AI371719, BF807661, AA292291, BE383236, AV720750, BE899537, AI000704, AI818993, AA479790, AA431277, BE390619, AI022721, W22964, BE272304, AW408309, AI253017, AW591178, BE675210, N95623, AA602318, AI056071, BE742724, AI476357, AW140028, AA804432, AA781030, AW408436, AI984696, AW131877, AI961505, BE206993, AI274216, BF835812, BG152655, AW590840, AI971841, AI479581, AA886664, BF058894, BF058417, AI927571, AI984332, AA650057, AI056445, AA889138, C17422, BE882774, AI983968, BE742753, AA133815, AW189944, AW206565, AA581792, AW270868, AI916786, AA403226, BF434647, R87263, AI380790, AA147150, N62158, AA358062, BF315550, AI000845, AW204311, BE670791, AI809830, AI368240, AI347325, BF732294, R87935, W79356, AA399193, AI050369, AF052052, AB035134, AB029495, H45335, R84668, R85565, R87237, R87936, H52150, N79286, W04510, W25015, W31451, W74063, AA045677, AA045676, AA079124, AA079225, AA101050, AA133814, AA187420, AA424373, AA427537, AA534176, AA613535, AA639404, AA902431, AA971215, AA975172, AA995904, AA389725, AA477187, AA883164, AI087917, DI9890, AI301199, AI302662, AI347144, AI439497, AI498489, AI624625, AI91497, and AI655119.</p>
HTEOY86	777	870519	1 - 728	15 - 742	<p>AI828906, AI979270, AI554187, AA774470, N93466, AI686796, and AF081947. BE253978, BE254398, BE255799, BE781341, BE780436, BE780457, BE255033, AW172618, BE257706, BE251940, BE780314, BE255909, AA887084, BE783528, AA913157, BE253356, AI184620, BE253421, BE257391, BE257100, BE252558, BE256521, BE618088, BE258350, AI024872, BE251745, BE252959, AI581295, AI024850, BE256106, BE778121, AA062589, BE258660, AA938866, AA953444, BE255962, BE251245, BE259105, T19332, AI351056, AA700997, BE251072, BE259435, AA063062, AI016246, AA406443, AA994466, T36111, AI017555, AW025700, BE259217, AA364302, BE255046, AA729497, AW966401, U25928, BE251141, AA410460, AA776786, AV702417, AV695700, AV729376, AW950211, AV703687, AV706417, AV709092, AV686100, AV696754, AW952007, AW956891, AW964251, AW960655, AV728652, AV705299, AV705340, AV702296, AV726787, AW951270, AV729076, AV702998, AW962386, AW949478, AV725153, AV651897, AW962978, AW950443, AV703790, AW960601, AW952403, AW952183, AW959806, AV656903, AV661704, AW952751, AV697196, AW956075, AV645936, AV709587, AW955723, AV705135, AV658084, AW959980, AV650283, AV652600, AV650315, AW963768, AV659389, AV650591, AV697880, AV727613, AV656373, AV726010, AW964440, AV655280, AV660258, AV708109, AW959521, AV647789, AW956474, AV659294, AV727787, AV650691, AV703146, AV686060, AV725745, AV686064, AW951239,</p>
HTEKC55	778	870560	1 - 1282	15 - 1296	

					<p>AV660608, AV728148, AV659322, AV726156, AV650768, AV654908, AV726590, AV698545, AV656478, AW959988, AV709314, AV653353, AV708381, AV654070, AV660728, AW951437, AV691080, AW951281, AV702385, AV658275, AW949802, AV652001, AV651955, AW955662, AV707979, AV703669, AV709580, AV727003, AV725208, AV685536, AV725582, AV708786, AW957517, AV659547, AW959543, AV727526, AV703169, AV725618, AV651920, AW954439, AV727510, AV725633, AV725031, AV728518, AV702266, AV725577, AV725033, AV706223, AV728924, AV725617, AW954206, AW960207, AW955900, AV707863, AV725991, AV696931, AW964421, AW952410, AV703062, AV727822, AV699089, AW964410, AV701874, AW950888, AV703501, AW962444, AW964409, AW964585, AW953574, AV702772, AV704774, AW952460, AW955710, AW954237, AV701180, AV651519, AV707401, AV701183, AV658751, AV683669, AV709660, AV704585, AV709935, AV654035, AV707652, AV707663, AV707654, AV728721, AV683994, AV706854, AV704042, AV654282, AV709880, AV697288, AV729220, AW954134, AV698290, AV687035, AV704847, AV694836, AV706882, AV697498, AV702954, AV655096, AV686420, AV694812, AV727238, AV682997, AV727126, AV696866, AV707656, AV726681, AV655890, AV701946, AC023790, D87325, AX047063, AR050070, AF217994, and Y08991.</p>
HTEPK69	779	870574	1 - 3737	15 - 3751	<p>Z78359, BG120498, AL046787, BE299948, BE300005, BF797592, BE646411, BE276812, A1467849, BF305442, AI921905, AW956677, A1742229, BG119339, BF819588, AW950506, A1740928, BE296434, BE393487, BF819587, AW148851, AI916736, AW419330, AW960994, BE882538, BE348307, AA804534, AW451611, AA767277, AI281433, BE646526, AI564217, AI523942, AW364769, AI082623, AA640539, BG150038, AW299493, BE868562, BF196195, AI620008, BE219516, BF334208, AI123945, AI346533, AW469851, AI377579, AI191913, AI610109, AI078678, AA854786, AW085483, BE709716, AW594393, AW978688, AI769651, AI928062, AA923067, AA812157, AI261346, BF875725, AA609195, AI581271, AI025849, AI150639, BE464201, AA599239, AA507048, AI760076, AW194073, AI433379, AI743119, AI041747, AW391749, BF951175, AI347336, AW450845, AW002493, AI275418, AI492025, AW779548, AA742999, BF952495, BF875723, BF734130, BF223867, BE561889, BE504028, AA004830, AA985634, AW452983, AA113313, AA890051, AA814915, AW466976, AI824318, AA767281, AW503165, C06203, AW503174, AW511964, AA983475, AW169615, AA814762, AA031943, AA076092, AI383336, BF951177, BE810312, AW241600, C75084, BF223117, BE463611, AW952105, BE772610, AW504409, AA631549, AW408517, AI814568, AA079540, AI739068, AW950500, AW505489, BF436266, AI245591, AA317350, AA678884, BG055334, BE397945, BE832079, BF954919, AA953576, BE514108, BF355029,</p>

					BE772608, AI025449, AI290521, BF593540, R24919, BG166636, BF355018, AI017117, AA380072, AI290529, BF963779, H62992, A W629195, BF432519, H62870, AA083323, BE810313, BE832080, BE561312, AI655457, AW079439, W39450, AA890518, BF954920, BE043919, Z39344, H22877, AA861351, AA364532, H24270, BF109152, Z41904, BF847925, AA079508, BE832075, BG029927, BF950647, BE832085, AA768236, BE560198, H65005, H65006, BE832072, AI538604, T30796, BE350784, BG258116, AI382740, AA004983, AW075096, BE672383, Z43272, BE832076, AW801160, AI049753, AA384663, BF954799, AW502714, AA305651, AW958942, AA345258, AA325114, BE677857, AI750479, AA101388, BE268596, BF951166, AW469949, AA180878, AA054836, Z38201, AA648532, BE267814, W38371, AA031942, R67437, AA180892, AW590120, AA346082, A W407493, AI469164, AA417722, BF817201, BE832081, BF997272, BG012014, AA076212, AI016444, BF771965, AB029031, Y17923, and I86429.
HTENV57	780	870594	1 - 484	15 - 498	AA927155, and AI034550.
HTEJF45	781	870668	1 - 575	15 - 589	AA203365, BF531024, AI813708, AW962262, AW300554, BE857681, AW026370, AI654923, AA252931, AW612414, AW299408, N70033, AI859872, N46021, AA977420, AA629258, R77192, AI659888, AA252888, H11937, AA149537, AI024609, BF941586, BF511106, N69894, AI768599, AI420563, AI472810, AI810949, AA489009, N98886, AW955695, AI698854, Z38327, AA364127, AA488535, AI187721, AA488402, AI803900, AK000484, and AI034380.
HLTGU35	783	870713	1 - 549	15 - 563	AW016785, BF929951, AA479308, BE999936, AI911597, AI633540, AI381011, AI529110, AI057451, BF063133, BE077233, AI283542, AI224172, AI025510, H16901, AW589256, R25758, AU156824, AU155569, AC009318, AK001324, and AK001927.
HTEDK07	784	870714	1 - 1289	15 - 1303	AI529110, AI529111, AI633540, BE999936, BF699695, BE567017, AA479409, AI911597, AW016785, AA479308, AI381011, AI057451, AI283542, AI224172, AI025510, BF929951, AW589256, AU156824, R23887, R23374, AU155569, BF063133, R43074, R25758, BF818086, BE077233, H09061, AK001927, AK001324, AC009318, and AP000533.
HADGO63	785	870818	1 - 2228	15 - 2242	BG166730, BG110060, BF943758, BG167478, AW369739, AA779755, AI796818, BF344838, AW418704, BF929566, BE882564, BE464531, BG026115, BF106049, AA253192, N53509, AI858417, AW452986, BF217071, AA699819, BE972399, AA283162, AI925522, BF888071, AA283001, AW874681, N34875, AI435285, BF196546, AA835906, AI310069, AA450155, AW802860, AI188262, AW389878, AI147757, AA281217, AA190638, M85582, AI205841, H59008, AW960558, AA677865, R67473, AA938660, AA253193, AA813927, AA281382, N53540, Z43489, AA768728, AI134248, T16522, AW294131, H02995, AA743257, Z39559, AA304497, AW204264, AA843356,



AI091465, AI056131, AA731028, AI783829, AW136002, AA262404, AA278751, AI636644, R98998, AI982655, R45774, Z44159, H58959, AI003182, AI920975, BF927340, N28309, BF094348, F03331, AI352036, AI002363, AA971070, AA742867, BE079625, D55993, BG006790, N43949, AW264028, N71983, N99530, AA995553, BF963604, D12444, AA093631, AW379497, AV650423, BF665585, BF812426, BE965121, AI863321, AW150453, AW505354, AI521040, BF877661, BF810126, AI922901, AI287489, AW079572, AI583065, AI800155, AI934039, BF920893, AI569328, BF816042, AI811311, AI559737, AI559586, AI570861, AI670002, BG181066, AI915291, AW089350, BE964168, AW088903, AL121286, BF812938, AW076093, AI922215, AI537303, AI254727, BE965621, AI554427, AI582932, AW078729, AI886753, AI933589, AI491897, AI537261, AW118518, AI452707, AA833760, AI567351, AW151714, AI569583, AI570807, AW026882, AI923370, BF987104, AI249962, BF812960, AW087932, AI587606, AI468872, AI648663, BF970652, AW129230, AW050522, AI433157, AI702073, AI611354, BF812961, BF032768, AI539771, AI828731, AI274013, AI564259, AI537677, AW983829, AI633125, AI698391, AI815232, AI366900, AW152182, AI889189, AI824444, AW059713, AI926790, AI513803, AI569309, AI699011, BE907440, AW074161, AI499285, AI500061, AI609589, AI680162, AI537076, AW983822, AI269205, BG250115, AW078529, AL110306, AI362522, AI538342, AI521560, AW167228, AI653979, AI432218, AW168452, AI521103, BF724894, AI312428, AI929108, AW827276, AI625467, AI611743, AW090013, AI561231, BG249582, AW088134, BF814453, AW080327, AI818977, AI539153, AI801460, AI868831, BE965114, AI863441, AW082088, AL036638, AW118398, BF904178, BF812439, BE965111, AI491775, AI514893, AI554818, AW117746, BE890783, AI431975, W74529, AI269862, AI866573, AL037582, AL037602, AI866798, AW026567, BE393551, AI679174, AI828682, AI670009, AI862144, AI251830, BE543089, AI473536, AI538817, AI434281, BF814412, AC005035, AK000380, I48978, AL359941, I89947, AL137429, Z82022, AK026408, AK027096, A08916, A08913, AF090901, AK024538, X82434, I48979, AF183393, A08910, A08909, AL049283, I33392, AK026642, AF130087, AK025524, AL389982, AK026532, AF067728, AX042059, A77033, A77035, AL117649, AL050138, AL137463, AL137271, A93350, AX010492, AF078844, AF113019, AL050393, Y11254, AL110196, S68736, A93016, I89931, AK024588, AL049430, AR087170, AL162083, A65341, AL080159, AI353957, AF119337, AK026959, AK026528, AK026045, AK026462, AF106862, AF104032, AL133072, A03736, AF116610, AK026744, AB047904, U80742, AL049382, AB048919, AF119909, AL359618, AF177401, AL353940, AL442082, Y11587, M92439, AK026504, AL049938, U67958, AK000137, AK025084, Y14314, U35846, AK026464, E03348, AB048953, AR000496, AB052191, U39656, AR070212, AL133014, AX006092, AF113691,				
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HTAHY24	786	870826	1 - 1063	15 - 1077	AA133012, W28418, W26126, BE241648, A1221445, AW194853, AA259200, AA132718, AA515221, AW820534, AV756230, AA127801, AF302494, AF076531, and AF076532.
HDPDO84	787	870936	1 - 555	15 - 569	AA187106, BG001758, BF816581, AV703906, AA432068, AA424177, AU126858, BF964679, BEG20497, AW850036, BF359293, BE144115, BE144226, BF090148, BF956332, BF888788, BF808796, AF225417, AL137497, AF216644, and AK001338.
HNTAN11	788	870937	1 - 844	15 - 858	BE620497, AA187106, AA432068, AA424177, BG001758, AU126858, BF816581, AV703906, BF956332, BF888788, BF090148, AW850036, BF964679, BF808796, BF935958, BG119873, BF359293, BE144115, BE144226, AA366193, BE000743, AL137497, AF216644, AF225417, AK001338, and AF277625.
HTTBJ31	789	870946	1 - 1471	15 - 1485	AI570568, AW341487, AI827050, AW298668, AF792189, AI015693, AI733599, AI672488, BF805186, BF805137, BF364828, AW193262, BF810817, AI244716, BF810805, BF812146, AA358477, BF810813, AI572251, BF812138, AA912444, AA330586, AI206100, AI864375, BF769701, HI6914, AA745659, BF771890, AK026431, AP000353, and Z92546.
HAMGO2	790	870957	1 - 963	15 - 977	AA528169, AA877468, BE537305, AW504343, AU157000, BE169367, AV712979,

4						BE778062, BF673318, BE784554, AA730240, AB036063, AL137348, AK001965, AB036532, AP001328, AB036529, AB036531, AB036530, H41568, AA236156, AA639736, AA827059, AA953361, AA701412, AI311084, AI311085, AI364049, and AI498787.
HODFK55	791	870975	1 - 1074	15 - 1088		AU127592, AU117973, AA114062, BE870261, BE871556, AW958589, AA355980, AA280560, AV759556, AK000970, and AB011169.
HBJMW49	792	871019	1 - 656	15 - 670		BF964805, AA706715, AA224086, AA23940, BE616009, AL519027, BF699413, AV705746, BF967473, AV716392, AW952775, AV742876, BE439764, AV727606, AA040832, BE616635, BE313141, BE615880, BE968540, BF105930, AA310233, AA027882, AL532886, AL536799, AA218607, BF966382, AL525450, AL533104, AA150665, BE616614, BE967383, W01548, BF966427, BF967477, AV732951, AW962227, BG105567, AL532956, BF791336, BG036727, BE777778, BE789706, T35494, BE763398, BF575752, BF968612, AA304821, AL519732, AI864304, AW962238, BF105848, AV749220, BF695741, T32119, BF351799, H61928, AL533208, AV723672, BF697535, BE171827, D45317, D45319, AL533167, Z42332, BE790247, BG110791, D45330, Z42207, BF675666, AA089700, BE856230, AA093377, BE765403, BF248124, AV722501, T35997, BF970588, BF104171, AX013696, AF161522, AL080097, and AI270952.
HSXDF62	793	871038	1 - 407	15 - 421		
HSVCE22	794	871088	1 - 426	15 - 440		AI076394, BF056245, BF057841, AI352554, AA856875, AW979136, AW074583, BE813017, BE072910, BE072901, BE072902, BE072900, BE072676, BE072907, and BE072669.
HFKLC74	795	871186	1 - 2651	15 - 2665		BE795961, BE410145, BE792414, BE746352, AU141954, BE262764, BE746375, BF309501, AU143707, BE746451, BG030810, BE900176, BE740821, BE746427, BG253158, BE898791, BG110646, AL040937, AU126223, BF338161, BG179766, BF345524, BE379093, BE892013, BE391125, AW806654, BE273057, BE901462, BE514600, BG110635, BE882355, BG254482, AL526148, BF732410, BE383442, BG256028, BE266643, BE296203, BE263417, BE260929, BF341263, BG177975, BE742897, BE391378, AI678640, BF338242, AI608862, BE070313, AW364764, AW364751, BE389202, AW749585, BE536984, BF846205, BE871785, AW601811, BF026243, AW601844, BG248934, AW328624, BF689666, BE779713, BE070314, AI990470, AW364773, AU153783, AI660558, AI346323, AL526094, AA314049, AU132206, BF000005, BF590718, BE383040, AW272745, BF874087, AI282823, AW083558, AL529521, AW751947, BE869684, BF809018, T16894, AW674628, AA281338, BF868950, AI765077, AW962815, AI948457, AW601835, AL043788, AI272873, BE903516, AW151790, DI9593, BF768551, BE543377, AW473561, BE391864, AI674272, BE301196, BE273581, AW028378, AI672826, AI193564.

HTLEV30	796	871212	1 - 630	15 - 644	<p>BE88353, AI254710, BF883105, AW071075, AI677761, AW104543, AI799853, AA427857, AI989734, AI935918, BE264490, BF817292, BE253493, AW951980, BE278632, BE778203, BG029437, BE545263, R50543, AW020634, BF349245, T16895, AI471616, BE257381, AI636573, AI655977, AI400930, R50640, H26449, AW237492, AW351978, BF913827, AI633340, AW572690, R73124, AI632288, AI682274, AA375610, AW365264, AW375257, AW179094, AW375252, AI744703, R73178, BF765941, AW178259, AA215719, AA355948, BF955772, AW366001, AW365263, AI971531, AW375244, AW375280, AW375221, AW375287, AW375277, AW375238, T19249, AW366004, AI681255, BF984755, BF432100, BF907757, BE783940, AA026278, BF349239, AW351591, AI420991, BF593548, AW673372, AW365167, BF346952, R10573, AW375245, AA502771, AW375211, BE278111, AW366052, AI185822, AW365999, AW675721, AW365268, AI080027, AW366003, AI810704, AW366007, AW074084, AW512856, BE841886, AW351639, AW751944, BF773461, BF820822, AW375242, BF207343, BE729701, AI266034, H65591, AW351647, BF212645, AW366050, AW366039, AW675196, AW366040, AA026277, BF332104, AW366054, AV739947, AW351640, AA449674, AW375312, AW351638, AA676292, AW366056, BF883094, AA315693, BF858431, BF734506, AW366048, AW375314, AW366053, AW752077, AW752061, BE841917, AL046149, BE896763, AI985358, AW364784, AW365161, AW673544, AW364797, AW387299, AA448947, AW752076, BE732072, BE515227, AI047455, AK022756, AK024284, AI050019, AF161376, and AF155546.</p> <p>BF570315, Z78349, BF570171, AI529424, BE257057, AW083356, BE379285, BE275116, BE387991, BE391217, BF026445, BE735512, BE250854, BF342184, BE730308, AI633569, C02416, AA983675, BF309514, AW081073, BE311512, BE407247, BF569803, AA677642, BF569378, AA553998, AI277832, AV696289, BE300008, BF969821, BE264652, BF312661, AA004344, and AC011442.</p>
HSRAV54	797	871264	1 - 1619	15 - 1633	<p>BF367785, BF367817, AI738981, BF940118, AA601674, AA469230, AI036896, AI797998, AI041375, AI090377, AI521525, AW086291, AI871973, AW970588, AA610381, AU160445, AA831426, BF828756, AU159614, AW275432, AU151751, AW020150, AA218851, AW272815, AA503307, AW500071, AI926102, AI065031, AV756663, AW963450, AU147761, AA298365, AI336771, AA598443, BE140949, AW177869, BE676856, AA525753, AA570255, AI358928, AW514065, AI035977, AI078409, BF916676, AA410788, AA635433, AA669238, BF933309, AI224583, AW272389, AW089625, AW151247, BE328286, AV712092, AF075353, AW341955, BG223384, AA484298, BE077105, AI332615, AA503298, AI048060, AA595661, AI914748, AI119737, AV695953, AI801505, F23338, BE154909, BF589824, AU145957, AV759766, AW902110, AA577706, BE677029, AW901945, AI801563, AW270771, BE154381, AA599712, AI915081, AA719564, AW575605, BF525663, AW963397,</p>

AW327852, A1879968, AW902135, AW963489, AW265006, AA480486, AW511778, A1791659, A1280535, H77492, A1174703, BE139139, A1278440, AV764259, A1277373, AW328446, AA515176, BF589066, A1623423, A1744905, A1204309, BF149121, AW502873, AA683069, H85388, AA507623, BF834298, AW341978, A1754421, BE245594, A1061313, AW855527, A1309943, AA846923, T11828, AW148964, AW243831, AA468923, AV751848, AW008184, BE674809, A1251034, AV683406, A1469384, BF970818, AW872736, A1250552, AU158351, A1284543, AP001721, AP001125, AP000057, AP000172, AP000330, AC008569, A1034548, AC011497, AC006042, A1136218, A1121585, AC007421, AC005933, A1035420, AC004755, AC027279, L44140, AC008762, A1109963, A1021546, AC005914, AC009245, A1031670, AC011489, AF111170, Z83838, A1031276, AC019140, Z84469, Z98946, L35532, AC009314, AC003041, AC009362, A1109935, A1355392, AC005094, Z86090, AC010605, AC007566, AC002119, AC005288, Z93244, A1133332, AP001710, AC006139, A1049758, A1049576, AC004797, AC004799, AC009116, AC003956, AP000514, Z83846, AC005519, AF243527, AC006330, AC010201, AP000150, AC011490, A1133353, AC002347, A1391986, AC004000, AC011811, A1031053, A1138815, Z68870, Z93783, AC005940, AP000009, A1445687, AC004662, Z75887, AC005206, AC004893, A1391833, AC005667, AC005484, AC008784, A1031728, A1135839, AB014080, AC005071, AF002223, AC004132, AF217796, A1138787, A1136295, AF067844, D28126, AP001694, A1136146, AC008812, AC005089, AC007919, A1035658, AC006581, Z81364, A1034402, AC009060, A1354683, AC007237, A1121845, AC005164, AC006345, AC010150, AC024078, AC004526, AC005024, AP000558, AC005005, AC005815, Z951116, AC005971, AC004898, AC005412, A1031662, A1109923, AC011890, A1162458, AC007956, AC010412, AK026238, A1078476, AP000503, AC008392, A1139014, AC002477, AC005841, AC004081, AP001727, AC022493, A1136137, AC004659, AB023050, A1109613, Z93241, AC024947, A1121952, A1121890, A1134726, AC010458, AC011895, Z95115, AC008379, A1049692, AC010311, A1158828, A1121886, AC009516, AC006329, AC009470, A1353804, AC010422, A1031121, AC004685, A1050307, Z98941, A1049709, A1031681, AC008641, AC004985, A1158040, AC009086, A1163201, M63796, A1022316, A1358777, A1033529, AC007563, A1031432, AF168787, AC004906, A1023575, AB023049, AC008892, AC015550, Z68273, AC009506, Z98752, AC007391, A1353701, A1008706, A1133395, A1022238, Z84466, A1049795, A1133340, A1136304, A1138917, AC004491, AP000111, AP000043, A1121748, A1158159, Z98200, A1117381, AC007151, Z93020, AC003013, AC002544, AC005247, A1133448, AC005666, A1445217, AC020898, AC009247, A1022721, A1109804, A1391114, A1138688, AC011491, AC002036, AF312915, AC083861, AP001743,					
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HTLID05	798	871356	1 - 1126	15 - 1140	AF196971, AC004796, AC006483, AC005778, AL021154, AL133355, AF217403, AF228703, AJ229041, AP001443, AC007066, AL445465, AC005277, AL353680, AC003108, AC005522, AC011475, AC002558, AD000812, AP001504, AC007750, L78810, AL162615, AL132713, AC002394, AP000511, AP000553, AP001724, AC007685, AC002073, AF111168, AL356115, AC005225, and L25175.
HDACG50	799	871387	1 - 1438	15 - 1452	AL537786, AL538232, AL535184, AA663560, BF530385, BE047914, Z45270, BF964415, AL534468, AW161542, BF933691, AW205626, AL201609, AC007227, AL135927, and AK026325.
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HWAGU6 2	800	871413	1 - 868	15 - 882	BE545984, BG167577, R77865, AI525869, BF214247, AU124097, BG178026, AU128462, W28537, AW899217, AV651084, BF377686, BF031657, AV651773, BF995707, BE871943, BE541011, AU127443, BF694284, AA092849, AK022558, AK022818, AF233321, and AC007785.
HOEBN65	801	871416	1 - 803	15 - 817	BF027485, BG033189, AV727227, BG035805, AL535626, BE882559, BF529940, BE615392, BF796714, BF026790, AV701622, BE410981, BE389452, BE391282, BE798652, BE902893, BF967185, BF026043, BE389461, AI568567, BF981315, AI992241, BE545652, BG222458, BE616681, AA142944, AI086596, BE302867, BG181027, N92512, AI080304, BF338630, AW090277, AW051448, W63805, W07740, AA843315, AI826693, AA708776, AW151172, AA788733, AA527053, AI299184, AW952840, AI167692, AI161139, AI039605, AV752458, AI160688, AI141373, AA708520, BE616131, AI200329, AA860813, AW337779, AI192219, AI129519, AA872411, AI031868, AI335895, BE730372, AI083531, AI148099, AA844466, BF725321, AA588191, AI076910, AA293831, AI805893, AA315199, AA401651, W93970, AA722032, AI074899, AA493343, AA769806, AI193867, AA436345, AA455203, AI193844, AI141356, AA079352, AA150647, AW750770, AA115544, AI421247, N58395, R87425, AW008542, AV683122, AW009811, AA228455, AA235095, AA454862, T90357, BF589193, R11503, N80680, BG152311, R53208, BE909256, BE818818, AW352337, BF993910, AW337638, N74117, R53110, F32557, BE838555, BE244898, BE838540, W38964, F24549, AI961636, AA228454, AA341105, AV740206, AA309877, AA079591, F24945, BE812404, R86694, AA715148, AA328964, W30921, H66602, W93969, AA302624, AA249309, AA215973, AA411491, R48412, N77987, AA389673, AA558040, AI695590, H87636, AA398459, AI803601, H87635, BF365878, BE764099, AA115055, R86695, AA181312, R49774, AA336147, R50624, AA889647, AA077962, AA402479, T83037, AA187054, AV741922, BF885291, AV741357, AA192729, AA303783, BF997396, AW352326, AA192762, AI378335, W38670, BE745102, R66236, H95941, AA301965, BE833122, BF757771, AA568295, AI970268, R49820, W21103, BF363034, AW352305, BE876790, AW614275, AW798279, N93442, AW750381, H66603, AA365456, F35088, AA904185, BE277437, AI609056, AI913636, BG151102, BF528327, BG121023, AF151893, and AC006329.
HOEEY60	802	871485	1 - 876	15 - 890	AA195037, BF111651, AI765129, AA195411, AI654178, AL519380, AI813420, AA195525, BE675058, N45297, AA928392, AI346691, AI659617, BE856962, AI034197, AI761583, AA029540, AW974198, AW006007, AI346170, AW083379, AI309925, AI346139, AI417275, AA397632, AI143023, AA435748, AW167905, AA877733, AA662436, AI274079, AI310731, AW083415, AA573261, BE786302, AI762953,

					AV646794, AI264501, AI589448, AW299773, AA531464, AV742573, AV646558, AV646608, AA531483, BE439818, AI557363, AI572087, R41762, AA381200, AA721384, AI214495, AI280297, BF871080, AA808852, AV709280, BF674821, AA029275, AI525601, R51622, AA722827, AA449889, AL519381, Z41845, W45128, AA336049, T35273, R63549, R63504, AV707619, AI743722, AW947045, AA330880, N54746, Z46219, BE770347, AI480191, W45087, AI269390, R17208, BF995086, AI873001, AA496193, BF081512, BF372138, AI206708, AW949633, AW949654, D80038, AW949634, AV655880, AW965158, D80164, AA305578, AW966388, AW966054, AW965153, AI536102, A84916, I79511, and AR060385.
HHECK12	803	871540	1 - 1057	15 - 1071	AI816291, AA232734, BF853999, H19158, AI760043, AA393161, AA773610, W26621, AW167198, BF814729, W27591, AW304670, AI627709, BF679777, AA977902, AA101978, W27637, H18406, BF933255, BF933289, AA865841, H22590, AA285182, BF431536, BG142220, AA078982, BF671282, AA778341, AA063017, N36725, N41575, BF574489, AI740515, BF575110, BE771604, BE855600, AI636468, AA778420, BF790740, BF432235, AI269917, AA705659, AI027118, BF574566, AI027084, AW149672, AI422217, BE858179, AI096968, BF694874, AI341974, AI640592, AI589163, AI298585, AI423082, AA862265, AA099574, BG249637, AA079083, AI348474, H18407, AA614423, N57559, N89853, AI018299, AA063036, H20775, BE926537, AI423221, AI422398, AA631996, N30801, AI368736, BE762736, AI864591, H18492, AV753461, AK024920, AK025808, AK025832, AK000159, and AX011620.
HTLEM32	804	871541	1 - 764	15 - 778	AI740515, BE855600, AI269917, AI027118, AW149672, AI422217, BE858179, AI027084, AI096968, AI341974, AI589163, BF432235, AI640592, AI423082, AI298585, AI423221, AA862265, AI348474, AI422398, AA614423, AA063036, AI018299, H20775, N89853, AA099574, BF853999, AI760043, N57559, AA631996, BF574489, N30801, BG142220, AI886999, H18407, BF671282, BF575110, H18492, AA918685, BF432451, BF790740, BF574566, BF694874, BF814729, AA079083, AA285182, AA236544, AI864591, BE762736, AI696054, AI553830, AI857516, AI655204, AI652751, AI968364, AA909303, AA927772, AI026914, BF693535, AI816451, AA933651, BF693585, T60608, AK025808, AK024920, and AI219539.
HPMT161	805	871619	1 - 580	15 - 594	AA457064, R20871, BE140475, AW955294, AW409700, and BE019514.
HHBO172	806	871663	1 - 1672	15 - 1686	AL536409, BF984403, BG164266, BE251780, BE778252, AW962226, BE736311, BE545565, AI923828, AW749803, AA308878, AA193632, Z44459, R72275, AI536408, BG122513, R59094, W78789, R35689, BE162322, AL530195, BF205215, BF307187, BF916512, AA744858, R00325, BF512099, H11787, and AI580894.
HAPRN77	807	871674	1 - 540	15 - 554	BG255460, BG176979, BG251830, BF791666, BG252085, BF924990, R23524, AW381867, AW381796, AL048976, BG253704, AW606122, BG035233, AA090251, BE882134, AA249265, AL043034, AU143428, BE780668, BF952440, AB011088,



HLJDL43	808	871689	1 - 1496	15 - 1510	<p>AR083288, AC005920, and AK024068.</p> <p>BF976391, BF976351, BG178961, BE543824, AI439688, BF792964, AV721546, AW962729, AV694662, AA583472, AA479822, AA885710, AI057124, AI653267, AV697510, BE264447, N49701, AI148473, AO081732, AW001515, AI813759, AA731528, AI922970, N49807, BF593785, AA452034, BF512743, AA479701, AW073331, AW474666, AI148815, AI148816, AA702261, AA766549, BE222696, AA445926, AW613459, AI686965, AA731291, AA044233, AI298827, AI147270, AA939152, AA716180, AI024961, AA282006, AA493296, AW152515, AI475562, AI097514, AI039456, AI681386, AI161374, AI281632, N21383, AA280640, AI763423, AA888775, AI373682, AA679522, N62989, AA902123, BE966552, AA581408, AA422025, BG030863, BE221139, N33020, AW302611, AI261781, AI364084, AV722450, AI864444, AI885859, AW673415, HI7856, AI565955, AA810677, AA426268, AW576089, AA452249, AA651796, BF446873, H85152, AV724357, T65936, HI7857, BE218385, W81297, W87455, AA425977, AI039721, AW051501, AI355116, AI631378, BG222582, H64238, W81298, AI002438, AW953685, AA917551, BF846414, AW050626, AI264829, N57719, W37599, AA864493, AI572991, AI446232, T33682, AW731627, R82258, AA291415, AW953326, T35180, H28948, AA281069, M78335, W37503, TI5882, R16143, H64239, T05455, BF434064, AA505158, AA669379, R82203, AI244034, AI682636, N42077, AI394615, AI952614, H61861, AV657212, BG056057, H28947, AA934672, AA255888, AA720621, AI859574, H90517, AI869192, AW594713, BE540188, H28057, H85074, AA760627, H39867, AI859582, AV690330, AA044372, AW406708, H02111, AA988203, AI866348, AI872524, AW129370, AA720624, AA668762, RI5115, AV684935, T33148, AA595234, RI5402, TS7732, AI865926, T33683, AV684958, HI3809, F13220, R41539, AI868229, AI927542, N79895, AA369765, AW876827, F10820, W93547, AA157584, AI368641, AW844400, H85114, AI983881, AA788651, AA452427, T04850, M78824, AA361270, AI090883, AA683273, AA730272, R31875, TS7692, AA854411, AW771020, AW401372, H02013, R23017, R31266, AA490402, AA343824, BF683292, AA143613, AW070582, AI891061, R31269, N59686, R31872, AI369926, BG031987, AI572432, AA343946, H13810, AW993420, F02165, N56304, AA585461, AA281194, R39282, R22913, AW939639, BF914315, AW403720, AI444957, AA214393, AA157662, BF028064, T64511, BG110705, AA094854, T91846, AI560106, BE784887, BF899132, N63723, BF796861, BE281229, H93590, BG179907, AI073688, BE544355, AK024539, AF302079, D85748, U07617, Z85987, AC006115, AI121652, D83989, AF024533, AJ006996, AP001666, AC006336, AL445258, AL034372, AI137012, AL078602, AC006120, AC008626, AP001700, AC005330, AC006111, AC022407, AC005015, AF243527, AC006012, AC008562, AC020595, AL353802, AC007000, AC008567, AF317635, AC020629, AL022238, AC002558, AC007537,</p>
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HTXOX92	809	871693	1 - 2030	15 - 2044	AL519290, AL533566, AL515841, AL533565, AL518507, BE786283, BF796381, BE789948, BE894550, BG023950, BF974711, BF980376, BG176688, BF797260, BG256417, BG251518, BG117297, BE739732, BG034952, BG178736, BE397435, BE311957, BG110989, BE865449, AV710566, AI937192, AI992140, BF182770, BG106973, BG034206, BF971870, BG256534, BE541348, AI924787, BE543876, AW836476, BG177438, BE622551, BE397128, BF183961, BE777495, BE788503, BE748574, BG105315, BG031320, BE787440, BF972659, BE278877, BE891447, BE619355, BF184135, AL518506, BE280620, BF210240, AV761560, BG025014, AI133232, BE544842, BF666632, BF574847, AI917927, BF184564, BF028159, BF832502, BF672018, BE567184, BE896572, BF126162, BF670473, AW836533, BE263294, BE866141, BE782700, BF797499, BE885849, BF789937, BF679414, AV731004, BE968529, BG252668, BE542202, BF207936, BE968522, BF977557,

BF126311, BE076579, AW842559, BF694334, AA150370, AW662270, AW749852, BE885354, BF574762, BF574389, BF694115, BE380057, BF212469, BE787832, AV722488, BF448701, BF672881, AW249958, BE748159, AV711426, BE549264, BE261139, AW572539, BF183899, BE960988, BF244215, BF574422, BF105168, BE788552, BF216922, AI817573, BF210143, BF792550, AW965833, BF184857, AW749851, BF184861, BF031875, AW754237, AI694726, AI457776, BF38952, BF979428, BF031334, AI917937, BE866154, AA887005, BE457776, AA865629, BF239845, AA488514, BF204630, BF574413, AA706657, AW805029, AA308188, BG054856, BG256896, BF246651, BF131533, BF029681, BF571765, BF196908, BF314807, AA488382, BF248180, BE567679, BF913851, AA165473, BF243825, BE158889, AV724848, BE047291, BF126351, BE349461, AW574716, BF184055, AW272837, BF185743, AV648985, AW196993, AI515840, BE871168, AA207160, AL519289, BE870906, AA625331, BF732912, AW440612, BF669827, BF737448, BF819190, BE160569, BE617635, AW298689, AI635826, BE295821, AW376046, AI963742, AA843667, AI337859, AW073156, AI831352, BE869113, BF196646, AI432811, AI199088, AW402046, BF240249, BF029790, BF211753, BF105073, BE563896, BE886188, AW953221, BE882637, BF693355, BF130771, BF207830, N21123, BF184735, AI432806, BF196641, AI432815, AA946668, BF445904, W22643, AW073864, AI818885, BF185266, BE392307, BF213687, AW628337, BF671466, BF102555, BE251918, BE090056, AA888946, BE971166, AI146294, AI952116, BF212975, AI281187, AI126683, AI037522, AI950979, AV753628, BF692708, BE387374, BF670839, BE567194, AI354555, BF515410, AW022411, AA812651, AW419098, BE564807, AW073153, AW246225, BE047408, BE865414, BF241430, W22333, AV735371, AI202781, AI865243, AX015061, AX014858, AF131820, AX017835, AX017984, AB009685, AF078863, AX046518, AF161400, Y17793, AX030435, AR071207, AX030436, AF064854, T51884, T51884, T92411, T65552, T65619, T75302, T80328, T81433, T81434, T96979, T97091, R00998, R07112, R13827, R13922, R27577, R27676, R35406, R37686, R38011, R38672, R39034, R49203, R51542, R53033, R49203, R61540, R61594, H00151, H01276, H05079, H07042, H07041, H14588, H14693, H16360, H37896, H38255, H99405, N31138, N34542, N75155, N80252, W07378, W42462, W45201, W47578, W47599, W56427, W74265, W79879, W90765, W90698, AA001746, AA001816, AA004544, AA021240, AA021298, AA069253, AA069252, AA075721, AA075772, AA081577, AA084448, AA086275, AA099494, AA102004, AA112823, AA113108, AA128022, AA135400, AA137149, AA150268, AA165393, AA181003, AA182857, AA187989, AA187990, AA259097, AA224849, AA224936, AA259252, AA259253, AA468580, AA528583, AA554940, AA593620, AA622124, AA627792, AA570061, AA565937, AA658029, AA714075, AA729824, AA731839, AA737425,

					AA825318, AA837815, AA862234, AA862451, AA887194, AA927428, AA946797, AA970342, AA983168, AJ085303, N55999, N56531, W22064, W22147, W22225, N88963, C05903, AA090863, AA091082, AA093823, AA206334, AA292871, AA401686, AA406410, AA410351, D12239, AA585103, AA653606, AA669989, AA709303, AA776685, Z19302, T03456, AA984576, AI076144, AI076537, AI084406, T10532, Z28606, Z28736, Z28871, T24105, T16320, D31276, F11118, F00225, F13118, F13539, F10722, AI242388, AI270573, AI276356, AI280784, AI289393, AI299454, AI304627, AI311075, AI340986, AI347607, AI357405, AI222508, AI445973, AI446103, AI475069, AI564655, AI479951, AI584109, AI140245, AI201600, and AI203581.
HLJDU57	810	871712	1 - 468	15 - 482	BF679558, AW073731, AU138514, BE780246, AW501986, AK025482, and AK023638.
HHFKL03	811	871735	1 - 831	15 - 845	BG256531, BE092014, AW501950, AW801252, BE092132, AW607035, AW363642, AV707961, AW873541, AI246496, BE171936, AV705517, AI745566, AB020637, and AK026560.
HNTTB69	812	871818	1 - 1174	15 - 1188	BE279345, AA459453, AA101550, AA121619, AA205866, BF312631, BG257509, BF312124, BF316513, AA220914, BE902971, AA223598, AA113943, AA486007, AA223124, AA205631, AV751901, BF306788, AA223374, W21295, AA196719, BG257252, AV738784, AV759714, BG257521, AW247263, BE018678, AA181792, AW250315, AA216703, BE795493, AV751522, AL532258, AA026482, BG259318, AA227341, BE409912, AW960173, AA218599, AA132567, AA219692, W58281, BE871186, AA215359, AL518976, BE263657, BE782475, AA206169, BE265441, BE537319, AW247709, BE265357, AA309127, BF796436, AI541341, AC012156, AL157432, AF212220, and AK026932.
HKAAA37	813	871827	1 - 1136	15 - 1150	BF690054, BF940929, AI133589, BE887401, BE903639, BG110948, AI991016, BF125876, W63675, BE393241, AV716597, AA931985, D56220, AA100699, AV711610, AA743791, AI580860, BF732877, BE730258, AI240907, W61091, AA729784, AI750271, AI751445, AI307444, C06381, BF026122, D56451, BE727175, AA857534, AV744622, W37266, AA884177, AA604196, AI366507, BE793846, BE934317, BE742662, BE934437, BE740614, H63216, AA159266, AA088853, BF357124, AW008969, AI687095, BE934332, H93412, AA765667, BE795342, BF879857, BE934366, AA158009, AA907608, BG170115, AA781694, W25078, BF689981, AW245246, N25841, AA022543, T67440, AA641826, BE790851, BE793469, AA148229, BE903214, AI797289, AI911205, AI570144, H63130, AA075311, AA159685, AI866628, AI394269, BG031485, AA074669, Z45116, F28627, AI077930, AW952124, R81680, AI972298, AI318137, AA837473, AI541453, BE799132, AA326131, BE735825, Z36872, AW009221, BF845363, AA248589, H95566, H93411, AW009897, BE267419, AI139372, R52800, AI524549, AI278793, H53993, N30347, BF026858, BF880011, BF209529, BF836728, AA159684, BE835868, AW016845, AW263105, BF055202, AA720507, AI637710, BE265249,

					BE513607, AA365904, AA613553, AA558508, AA960959, A1784022, AA996071, AA131646, BE958392, AW050433, Z25275, R62171, F37146, T30690, AA022542, AW069303, A1026967, H17647, H41429, AA148228, AW247577, AA131464, BE267114, BE263036, AW247732, T34155, C05230, AA316485, R62284, A1751446, A1750270, BE798194, R81681, N93270, AA159378, AV699213, T36130, A1383153, Z40848, T69473, BF845356, AA158337, A1560479, BF813619, AW858522, BE814767, AL042523, AL042468, AL135012, BF084778, C03927, AL134110, AW577199, AW601637, AL045327, AL045494, AL134524, AL042420, AW577201, AL045328, AL042741, AL042655, AL047163, AK024765, AF116692, AF197937, AL136116, AR066494, AL133053, A85203, AL133074, AL133049, and AA969551.
HACCB78	814	871878	1 - 581	15 - 595	AL532443, BE736025, BE395253, BE887409, AL532442, BE781501, AW405929, BG253497, AV723533, A1718012, AW804688, A1905045, AA394034, AA192851, BF820479, BF351381, BF056095, AA478664, and A1905041.
HMAKM2 7	815	871887	1 - 2096	15 - 2110	BF032601, BE884480, BE896847, BG107409, AA534380, BE935961, BF593809, A1275974, AA758011, A1091865, AA770655, AA826573, AA642458, AA284480, AA308157, AA150509, A1338707, H98214, A1085686, A1613457, AW007656, BE677803, AW083271, AA156713, BF890758, BE092569, BF687549, R38877, A1716024, A1079204, A1561066, AW629504, A1638057, Z44870, AA468549, BF445676, AW771735, BF852685, AW173317, AA368918, BE092420, AW969242, A1254739, T80580, AA406249, F07793, R55262, BE832360, R55263, AW900776, AA625472, F05814, Z40638, F04054, AA321781, AW021358, AA714089, BF886411, H91564, AA954780, BF871030, F02061, AA243079, A1640665, BE774931, H90643, N44003, AW135695, BE927559, BF757045, AW999558, A1002239, D19832, BE567146, BF089866, R12721, BE932984, BE832354, BE707285, AL008639, AB040946, AF139898, AF131746, and AK027079.
HTLEO76	816	871905	1 - 501	15 - 515	AI650584, AA297993, AW961753, AU134330, AA297533, BF832650, AK023386, T86497, T82189, T82190, R71600, H13433, H13479, H39877, H54215, H58444, H58445, H90515, H90612, N49878, N67976, W94927, AA148536, AA156626, AA243312, AA262731, AA280401, AA481036, AA481116, AA491260, AA911168, N56306, AA204861, AA599121, AA625826, AA628304, AA846252, AA910465, AA913474, A1052679, A1080658, A1244439, A1306694, A1123958, A1142679, A1627205, A1630851, and A1653857.
HTPBR76	817	871944	1 - 884	15 - 898	AA179229, N47674, BE544665, BE868067, R88653, and AC004685.
HNTNH42	818	871982	1 - 756	15 - 770	BG108231, AW027467, BE549843, AW002474, AA249580, AA054620, AA043925, AA046731, AA047158, BE840469, A1653300, A1917733, BF221599, BF056768, AW969313, AA760924, AF004840, and AF090866.
HFRCB84	819	871985	1 - 723	15 - 737	

HLWDZ48	820	871994	1 - 1020	15 - 1034	<p>AL523658, BE742720, AI887986, AI361806, AL523657, BF032414, AA843431, BG112272, BG114160, BE743216, BG254436, BE541137, BE538694, AW574661, BG180832, BG122703, AJ041835, BE782447, AW963413, BF196383, BE789190, BE314040, H93008, BE892229, BF038947, BE539530, BF691494, BF032909, BF035976, N23788, AW606410, AI684352, BE855820, AW673568, AJ818104, AI198978, AI888675, AW731715, AJ016917, BG253548, AA251497, AA156659, BF694975, BG027384, N45375, AA883250, AA507394, W85704, AI023435, AV736888, AW391866, W22943, N36039, AA196875, AA838424, AI190353, AA854726, BE157090, AI497789, AI130677, AI805721, AI360590, AA513745, BF855589, AA830287, AA150457, H98174, AI051928, AI362758, AI363063, AI084879, W04868, AI079922, AA596005, N31663, BF855612, AI493678, AA826825, BF082353, N21018, AI206361, AI653847, AI200202, AI128368, AI284973, AI128349, AI312697, AI312666, AI248121, N32421, N24913, N41352, AI199993, N56843, N24199, N32064, AA251539, N32703, AI128532, AI969465, AW803954, AI282180, AI925582, N42221, W72864, AI124912, W45383, AI200989, AW298606, AI040779, AA036893, N24183, H74292, AI200603, AI350819, AI498220, AA772681, AV744681, AA631880, AI000430, AI318071, AA514602, W51970, AA315664, N22996, AA878042, AI499035, N31686, AI023392, AI189536, BF746415, AA722758, AA977027, R77003, AA701051, BF693558, AA159754, W86916, R71001, AI200017, AA856551, AA146841, AI205729, W48824, H94999, H74293, AI337597, AA962756, AA764846, AA889344, N70498, AA903482, AI206374, AI969476, BE158168, AW408209, AI349596, AW008691, T49177, AW860686, AA146840, W01403, BE158146, AA172157, BE158128, AA873579, AI383805, AW372351, W78937, AA608849, R98963, AA171950, AV749689, AA983586, AA860599, AW363469, AA911913, H58077, AI184783, W40392, W75959, H91602, AW887805, AA318271, N26462, AA159753, AA731004, AA775821, N70787, AI810815, H61466, R98874, R48547, AW578938, T49176, AA334127, AW972495, BE158148, AI376333, H01262, AA911925, AA852093, AI219025, R48636, AA852105, F13602, AI290159, H04151, AA357562, BE158136, H40131, H38099, AW843835, AA127482, AA372234, AI880131, N28582, AA890429, H99350, H04152, W23232, H58076, AA369618, H01174, AI243065, AW075805, H91603, BF229077, AI244064, AA190735, AA256143, AI701636, AI907592, W24405, BF887668, AA903426, AI280941, N93093, AA127481, AA812772, BF761457, BF062218, AA255970, BF081145, AA757807, AA704665, AI358908, R70950, AA788734, AI247984, and AF151018.</p>
HKAOC61	821	872013	1 - 615	15 - 629	<p>BE408359, BF034352, BE782529, BF663499, BF125809, BE264972, BE900920, AA411585, BF970515, BE910261, BE262322, BF206350, BF680573, BE904868, BE314050, BE889078, BE252952, AW955529, AA485512, AV752768, BF343862, BF183040, BF116109, AW407316, N36051, H42954, AV688973, N79656, BF056595,</p>

					<p>AI066608, AI031665, AA393178, AI290747, AW001391, AI908551, AI908565, AV745547, N33866, AI186832, AA296690, AI084670, AI147480, BG167518, AW856249, AI140421, AI720871, H93834, D81930, AA477803, AI279073, AI741421, AA814458, AA143285, AA296812, AA512969, AI281075, AA968894, AA854174, AW874059, AI033995, AI950072, AA411457, AW276772, AW473105, AI310485, AI434953, AI682083, AI280176, N88797, AI027471, AI937180, AI061395, AI191381, AI884439, AI246055, AA954913, AW196298, N95220, AA477804, AI568461, BF764144, N63979, AV728317, AA402550, AA298307, AW002095, AA402549, AA298404, N25183, AI418957, AA143229, AA557594, AA857556, AI869942, AA502177, N25233, AA724336, AA296976, AI200178, AA297564, W21048, AI262872, AI220131, BF344111, AI264945, AI266423, AI192573, AW192188, AA303056, AW956361, BF221838, AI205287, AA297445, AA938296, AA305827, R97588, BF673964, AI263686, AA485357, AI910113, AA298311, AA045562, AW602659, AA082648, AA887422, AI682860, AA411909, AI559369, AA885990, BE827119, AW366028, AX018175, AX018068, and AC005922.</p>
HHEMJ13	822	872036	1 - 668	15 - 682	<p>BF036644, W07704, AL044714, AV648831, AV648819, AW995328, BF326822, BF843917, BE000761, AI638670, AI953415, AW393113, AV712139, BE178092, BF844535, AK024297, AK000714, and AL133153.</p>
HTFOA36	823	872070	1 - 974	15 - 988	<p>BE906731, AV729001, AW365097, AA846784, AI131304, W44347, AI097616, AI564003, R35296, AA482948, AI096726, BF846287, AW997319, AW997218, AA608789, AA490195, AA010018, H60973, AA715205, RI7247, AI694485, AI738971, AA490375, AW138082, AA010017, AW957556, AA377980, AI001187, AW732393, AI027726, AI024923, AV707882, AW951270, AW961247, AW963232, AV705420, AW964520, AW962648, AV654689, AV702856, AW957970, AW967280, AV702463, AV708590, AV708498, AW959823, AV702749, AW960685, AV709494, AV725063, AV692178, AV646916, AW963847, AV704410, AV646504, AV646609, AW951240, AV705250, AV647692, AV725550, AV707331, AV728404, AW950375, AV687036, AV705234, AV709244, AV725387, AV727189, AV705392, AW955749, AV702389, AV709939, AW954009, AW959149, AV707322, AW963625, AV727080, AV701739, AV725829, AV702574, AV704031, AV706147, AV701646, AW966775, AV709281, AV652405, AV729337, AW962397, AV703844, AV652936, AV728609, AV701961, AV725095, AW963619, AV684521, AW957985, AW950277, AV647369, AV647390, AW961330, AV653766, AV704767, AV647233, AW963949, AV706226, AV702071, AV706683, AV646649, AW955152, AV704170, AW962367, AW958936, AV704144, AV708520, AW952306, AW963598, AW966625, AV647452, AW954336, AV647758, AV704342, AV691489, AW951450, AW964203, AV661498, AV682980, AV726653, AW951875, AW967188, AW950258, AV703833, AV703425, AV705319, AW954427,</p>

					<p>AV728410, AW955783, AW957102, AW964782, AV709772, AV727618, AV706076, AV705383, AV708083, AV704033, AW966270, AV655067, AV702950, AV729366, AV704467, AV704395, AV705338, AV705525, AV702282, AV702958, AW949351, AV727754, AV725237, AV729499, AV652840, T18597, AW962378, AW963811, AW961234, AV653153, AV702498, AV706316, AW964098, AV703086, AV729348, AV702787, AV702975, AV726754, AV706992, AV648182, AV701614, AV704876, AV702041, AV707907, AV728884, AW960456, AW952126, AW956517, AW950395, AV725154, AW963652, AV658334, AW952168, AV707416, AV703137, AV701499, AW954779, AV706025, AV703261, AW962407, AW957059, AW949441, AW959830, AV726930, AW949725, AV652536, AV704879, AW953971, AW966619, AW959871, AV708815, AV709222, AV703437, AW953969, AW963648, AV704981, AV705518, AV725842, AW963486, AW963660, AV705813, AV727625, AV703266, AV707270, AW951269, AV695709, AW955615, AW959538, AV646022, AW951933, AW963011, AW959937, AW960688, AV707135, AW949882, AV703273, AW953773, AV708720, AV694524, AV687808, AV727170, AV647941, AV652547, AV729501, AW954695, AV704971, AV727935, AK026006, A82595, A82593, AX047063, AX047062, AR050070, A62298, AX047064, U94592, Z30183, A62300, AX009343, AX009341, AX009337, AX009335, AX009345, AX009342, AX009344, AX009340, AX009339, AX009336, AX009338, AX009334, AX040581, AF006072, AX046743, and AR025466.</p>
HULEW22	824	872087	1 - 462	15 - 476	<p>AW239167, BF036606, BF797044, AL110323, AA341363, BG255458, AL078611, Z79997, and Z79998.</p>
HWADE54	825	872092	1 - 2506	15 - 2520	<p>AL527273, BE793486, BF305616, BF203973, AI636233, BF337358, AL449611, BE276018, BF305113, BG169928, BE794344, AL449610, AW955027, AA029645, BG231851, BE386543, AI824084, AI769804, AI769744, AI652943, AA677521, AA029713, BF879798, AW001115, BF879790, AI942487, AW572166, AA041310, AA224470, AI285006, AW083829, AW003475, AI804865, AA431600, AW444480, AI628342, BF852888, AW297740, BG261156, AW295260, BF476302, H43216, BE908321, AI015433, BF980911, R73031, AI362978, AL537021, AA732991, R61757, R61640, BE410390, AA255855, BF879691, AI355475, AL039739, BG006065, T53653, BF475396, AA368634, AI809421, AA534152, BG248804, AA041334, BF814051, AI652528, AI990347, BF001355, AA368424, T85425, AI540613, BF879680, AW751161, AI768806, AA352921, BF816471, BG117974, AI284089, N55142, BE894155, C02670, BG011218, AI868394, T53652, AI638636, BE870119, AA322475, BF997351, BE873482, BF822912, AI886291, AA027871, AA031573, AA431464, AI565311, H73300, C21411, BE904591, H85488, BG256126, AA535806, BE275983, R86025, AB045292, AK024725, AB045293, I89935, and I89936.</p>



HEMHH46	826	872093	1 - 928	15 - 942	BE894155, BE046407, A1742373, BG248804, A1138228, AA573889, A1830433, A1925224, AL039740, BE908321, BG117974, AA528201, AW628082, A1924218, A1571064, A1683135, A1475707, AA535806, BG261156, BE870119, AW452074, AA557158, A1673605, R73032, A1628804, N26129, AA031573, AA974394, A1767451, A1767461, A1767460, AW204676, AA926795, N50784, A1961155, R60973, AA719136, A1201190, T16566, AW006949, AA255855, AA027871, A1262067, A1569026, A1926852, AA354175, A1859390, R86025, A1678371, H43185, AA092300, R61758, C00844, A1598006, H85488, A1869857, AA027819, AA031452, and R61640.
HFPIX46	827	872113	1 - 1836	15 - 1850	AL527786, BE386766, BE386802, BE300076, BE299498, BE299975, BF308467, AA778659, BE542454, A1310145, BE730783, BE855609, BE901603, BE900953, A1569659, W03003, BE394640, A1858080, BE278967, AW957066, A1066688, AA629579, BE894153, BE895998, AW089966, N72301, AW090236, BE300338, H30717, A1025185, A1673663, A1134996, D20077, AA984671, AA865573, AA157331, AA157428, BG002843, AA342003, AW188233, H28142, AA782702, AL040088, AA296718, AA342002, AW886359, AA369151, BF125550, A1424611, BE551111, BF795984, AA369150, AW504570, A1828717, BE085589, BF433385, A1263341, AB011143, and AB018413.
HHPDK44	828	872141	1 - 747	15 - 761	BF243436, BF676689, A1800696, AP001696, AP001596, and AP001597.
HE2FK85	829	872190	1 - 1252	15 - 1266	
HPQSL36	830	872224	1 - 687	15 - 701	A1279903, AA953561, A1685755, A1971263, BF437741, BG035163, and AL049822.
HEQBF64	831	872357	1 - 880	15 - 894	BF983770, BG028619, BG178054, BE798880, BE312862, BG036055, BF982694, BF805099, BE257263, BE745866, BG117900, AL526063, AA037128, BF037981, BG024075, BE899052, BG112301, A1147040, BE303058, BG112873, BF968971, AA452082, BE539789, A1799103, AW954404, AW957489, BG023931, BE873567, H59917, BE793517, BE728450, BE933489, AA114064, BE810852, A1300527, BF344098, AL526009, R18087, R66211, BG023781, AA302917, AA740785, BF894564, AA297718, T63572, BF036180, A1749037, BG110999, BG026904, AW262596, H42029, AA298499, AA297928, AA026867, BF351017, BF035903, BE899372, AA114004, AA039801, AA057042, BE719811, AA297503, BE898463, AA019035, AW998750, AA282268, AA045009, BE873865, AW249503, BF830907, BE795630, BF917245, H82753, AA032064, AW407164, BG116527, BG231995, AA522833, BE931598, N46163, BE742141, AA451894, A1150184, BF854344, BE513205, A1754474, AA745848, BF854346, BE301334, A1963804, H84444, AW797132, AA922673, A1422459, BE395723, R29356, A1722562, AA037508, AA836524, A1356068, BF439421, AA629610, N36889, BG056311, A1832951, AW118884, AW797252, AA045097, W70034, AW084887, AW340229, BG110401, A1885257, AW770259, A1369408, BF112113, AW614905, BG054830, AW375991, AA994830, BE208015, BE090335, N69029, BE674986,

					AI028014, AI798549, AI369135, AI360652, AW847201, AW514771, BF508512, AI982743, AX035212, and AL137440.
HAMGB22	832	872526	1 - 2502	15 - 2516	BF109962, AW051537, AW971461, AI823986, AI904815, AI954085, AI523426, AW967781, BF000392, AA401605, AI311307, AI768857, AI692194, AW188473, AI991353, AI037919, AV707298, AI088691, AW057637, AA912979, AA157004, AI124670, AA401474, AA101470, AA625960, AA827143, AA411016, AA465188, AA633141, BG165674, BF242714, AA465546, AA732096, AA214618, T51500, AI080033, AI244110, AI040061, AA831705, AI308983, BG168645, BG168646, AA769468, BG164284, BG253641, AA721105, BG117025, BG025417, BE621893, BG258222, BG167818, AA906441, BE910738, BG252223, BE612896, BG123011, BF798053, BE621811, BF792445, BF984992, BF984267, BF345060, BE621810, AW440440, BG117030, BG117026, BG031014, AW605861, BE614378, BG168644, AA362688, AA362690, AA362689, T29199, AW858525, BE613101, AW972092, AW972091, AW968355, AW861944, AI431351, AW968729, AW968356, AW972093, AW877209, AW604723, AW971740, AW858526, AW972090, AW969229, AL119324, AW858455, AL044652, AW804686, AI142134, AI432644, AI623302, BF793870, AW392670, BE672759, AI431337, AI432653, AW081103, AI431230, AI431328, AI432654, AI431312, AC003083, AI110179, AF125531, AX030435, AR080280, AX030436, A94048, A94061, AR035224, I66487, A49045, I09252, I09251, AX002278, I09270, I09268, I09269, I07209, I07249, AX042374, AX033488, AX033489, AX033490, AR068508, AR068510, AR067734, AR068509, A63954, AX042377, AR091571, AR089207, AR089206, A49701, AX035430, AR089208, AR089205, A29109, A32111, I66495, AR068550, A23373, AR068551, AX042373, I66494, AR085090, A94046, A94054, I58322, I58323, I66497, I66496, I66486, A27169, A27170, A39929, A83151, AR067731, AR067732, AR038307, AR070554, I09267, AR071324, I66498, AX033474, AX033486, AX033487, AX035427, E01324, I08638, AR038321, Y17793, AR051528, AR051547, AR066494, AR051537, AR051524, AX042376, AX042375, AB026436, AR071207, AJ279014, AJ251859, A42964, AF064854, AR060234, AX046357, AR054110, A81671, AR069079, and AR043113.
HDABD89	833	872527	1 - 1610	15 - 1624	BF796038, BG256283, BE899409, AW411266, BE907333, AI051974, BF345708, BE315077, BF691882, BF311416, BE887862, AU122867, BF691560, BF666610, BF701624, BE255450, BE311625, BG177265, BE743411, BF691959, AW958012, BE907305, BE620393, BF317316, BE082837, BE301730, AW958234, AW149387, AI754455, AA147770, AA533076, BE620735, AU159965, BF203593, AW165978, BE018250, AW082928, AL538112, AA594903, AA188403, AI468025, BE076538, AI927282, AI073440, BE076551, AA531581, H09628, AA502285, R17469, AA814075, BE825337, AI363467, AI752883, AA683348, AI146918, AA653152, R41660, AI566949,

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HPMFUI1	834	873145	1 - 1189	15 - 1203		AU138387, and AK024358.
HHEFL55	835	873186	1 - 648	15 - 662		BG248331, BG036711, BG036734, AL526582, AU119915, AU120830, AL522581, BG119507, AL525440, AL521296, AL533011, AL520336, BE314452, BG025675, AL526904, BE958011, AW239479, AA306419, BG036731, AU126683, AU126613, BE871257, BE314408, AW411262, BE545814, AK021925, AK022780, and AK000480.
HHFIG66	836	873355	1 - 2680	15 - 2694		AL521804, AL521803, AL535427, BE397366, BF974996, BE562398, BE744093, BE561712, BE271237, BE397614, BE562082, BE397567, BE275147, AL535426, BE409602, BE561529, BE514409, BE561508, BE734376, BE513947, BE269836, BE397322, AW024974, AW303401, BF025695, BE730298, BE397518, BE747750, BE270550, BE277764, AW954868, BE304392, AW954834, BF892698, BE397865, BE207701, BE271132, BG104371, BF125819, BE397490, BE296686, BE207727, AI274799, AW074233, AI679074, AI499422, AI827575, AI928361, BE391918, AA160606, BE562087, AW732734, BF002414, BE267895, AA315776, BE644853, BE547421, AV696893, AV684921, AI016059, AW249651, BF155203, BF437505, AL527262, AW450819, AW079518, BE268902, AI365272, AI338083, AA729126, AA831884, AI440443, AI283488, AI925468, AI274761, BF237940, AL527263,

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HBMWZ8 5	837	873653	1 - 1975	15 - 1989	AL536598, BE887941, AV756335, AV685058, BE870177, AV723720, AW118603, BF111206, BF340004, AW290997, AI970788, AI653980, AW966583, BE465113, BE671612, AI884393, AW514791, BE467195, AI907480, AW952462, AI803977, AI038559, AI907487, BE966154, AA633580, AI299369, AI377662, AI281374, BG169496, AA809261, AA526520, AW058300, AI246272, NG4512, AI355041, AA737324, AV746861, BF102947, H02873, N80300, H03768, R77185, AI702548, AI216182, N47363, N75621, D59329, BF994041, AV740627, BF094920, AA328789, H50614, AA324459, AI245763, N22380, AA452590, H50615, AV740287, AV744231, AA302791, AA324510, AW865756, R25351, AA452770, AV746480, AI205785, BE222604, AV736353, AV748833, BE262868, BF308815, BF315059, BF205832, and BF203906.
HTTEL61	838	873679	1 - 748	15 - 762	BF087775, AW839965, BF374860, AW839962, W31264, AI337406, BE169179, AW877280, BF882198, BE741000, AW877281, AL530582, AL528110, AI469418, AU118071, AA371703, BF930219, AL529205, AW840116, AW383853, BF797612, AW842428, BE275577, BG258196, BE562335, AI523910, AW957171, BE407233, BG256771, BF354366, BE397686, AA076196, BE384815, AL529204, BE047789, BF793735, BG119332, BE560246, BF765564, BF084883, BF342801, BF685922, AI372805, AL035417, AC005043, AX017283, AF265228, AK021605, AB037846, AL137200, AF265229, AL359839, AL359839, AC005043, AC005043, AL035417, and AL035417.
HHEKA25	839	873756	1 - 1044	15 - 1058	AL521986, AL521985, AI817466, BE904098, BG260084, BF793132, BE894263, BE873833, BF439331, BF203429, BF983713, AI188184, BE910310, BF667874, BE904210, BG031216, AI803637, BE218333, BE378900, AW953618, BF940993, AI479853, BG116696, BE747895, AI199381, AI423127, AI458395, BE389366, AA780244, AA447624, AV728694, AV728921, AA743927, AI138746, AA284556, AW602172, AI340185, AI497680, AI701138, AI949706, AA410675, BF594730, AI570504, AI300375, AA423881, BF110364, AA262669, AA284795, BF344873, AA400547, AA429108, AI348309, AA316560, AA452960, AA423902, AA042988, AA316842, AA451674, AA043042, AA400244, BF003113, AI571390, BE549542, AA042861, R76970, AI560629, AA235589, AA453218, AA452820, N80231, AW105644, H60916, AA496998, BF589245, AA868885, AA448024, AI654988, AA428872, AA042849, AA357706, AA429062, AW794510, R93695, BF745192, AA523984, T90652, BF087292, AA946612, R34969, AI869572, H83024, BE261946, H51706, W38322,

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HTLEH76	840	873788	1 - 1413	15 - 1427	AL041454, BF829679, T49325, AV651897, AV652528, AV704756, AV726590, AV702164, AV725321, AV704144, AV702498, AV707401, AV653353, AV707420, AV709356, AV708872, AV727822, AV706076, AV729473, AV728404, AV725441, AV704785, AV725031, AV725618, AV708786, AV725582, AV709580, AV703632, AV701858, AV727618, AV706223, AV728715, AV727139, AV660096, AV701704, AV729424, AV726830, AV660258, AV701874, AV707503, AV703168, AV652001, AV704520, AV647692, AV703214, AV704279, AV726194, AV702783, AV709596, AV661286, AV706290, AV703417, AV705234, AV685688, AV689800, AV693005, AV687909, AV725991, AV725577, AV654035, AV656004, AV729366, AV726628, AV706882, AV707769, AV706407, AV729597, AV709880, AV706133, AV702851,

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HHEVQ56	841	874064	1 - 1666	15 - 1680	<p>AL521647, AL517582, AL519909, AL530801, AL519910, AL530267, AL530694, BF027493, BE547319, BE546592, BF203439, AL449825, AI096624, AL449911, BG116204, BF238066, BG115619, BE891889, AL449826, AL449912, BE315514, BF029131, BE781485, BE168855, BE218627, BE540603, BF337398, BE869726, BE961028, BF063670, A1742426, AW206464, BF576695, BF185952, BE549555, A1743004, BF114954, A1378547, AW207506, A1343524, A1763134, BF185160, BG030043, BF035075, BE550927, BF002486, AW071446, AW663669, AI923411, AI912546, AI971875, AW188250, AA452699, AA258683, AI979273, AV702492, AI421707, AI306659, AI681435, AL530693, AI741119, AL449721, AA977327, BE091524, BF196444, AA700541, AW136651, AI808184, AA721031, AI561015, AI800948, N24991, AL449809, AA485062, AL449720, AW470977, R55837, AA450060, AW139628, AI077467, AI863644, AI686596, AW365059, AW014260, N41370, AL449722, AW300126, AI638834, AW300113, AI151115, AA974156, BF934694, AA976977, AL449808, F32847, AA001396, AW405442, AA361681, AL449807, AA485157, R67953, BE737467, R35711, F29704, AI640210, AW189156, R66863, BE827512, BE827509, AA017578, AI913608, AA280510, AA569526, AI201767, Z44280, AA329679, BF829475, R17530, BE843834, BF056432, BF847853, BF805438, BF897074,</p>

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HTPHY39	842	874346	1 - 828	15 - 842	BF744793, BE383194, AW954672, AA307462, H86407, BF330227, AA019170, AW351511, AA036880, AA045560, BE169462, BE002829, BF985408, AW577893, D89677, AL133047, AX017513, and AX017612.
HPCRR53	843	874354	1 - 3319	15 - 3333	AL516624, BF969871, BF031846, AW961070, BF002940, AV760146, AW967335, AI346493, AI760821, AA621577, BE614425, BE666784, AW069380, AW955926, BE348366, BE393612, AI379068, H29083, BE966193, AA464795, N79788, AI803023, AI808143, AI367586, AI420880, AI581118, AA150590, AA907364, AA007602, AW087102, W33049, AI341764, AW273761, AW813968, AI435632, AW157498, AW080897, BF979932, AW439597, AW015612, AI368878, BE243262, W07286, AV758107, AA441898, AA160513, AA111896, BG163835, AW028757, AI243218, AA046003, AA620885, AI129000, BE673336, BE882257, AW023862, BE041840, AI587653, H28978, AA085677, R87794, AA428267, AA085834, T80505, AI247913, BF197837, AA111878, AI014838, H22982, T58186, H04232, AL536330, R87732, R81741, AA576671, AA339480, AA464200, AA143096, R36593, AA357180, T58072, H22775, R36594, BF733978, R27870, AL527071, AV753531, AV752854, AV751871, BF245058, AI566375, R27781, Z42184, AI709192, R81498, AW605869, N68098, N80539, BF832996, AA341976, Z38439, BF825158, BG001663, AL516625, AI537042, AA321931, BE184591, AW379008, AA046002, and AK000452.
HLQEW26	844	874356	1 - 855	15 - 869	AL038549, AI459234, AW511135, BE855861, N66469, BE328396, AL138369, AW029587, AI220238, AI283575, AA724654, AA937029, AI680995, AV725607, AW470697, AA206032, BE466570, AW169155, AI376220, AW316658, AW183089, BE047454, AI627582, AI312875, AI354763, AI682197, AW104886, AI587626, AI263311, AI537857, BF48872, AA934879, AI277741, AW024559, AI368080, AI280172, AI351850, AI263361, AW262729, AI630572, AA424860, AI002590, AA912940, AA085699, AW304237, AI620779, AW026862, AI808595, AI291942, AI751934, AA425630, AI698952, BF445622, BF514790, AI124072, AI950171, AI189704, AI937264, AI365291, BG055283, AA621559, AI309792, BE674295, AA745892, AA126512, AW103417, AW075551, AA430399, AI986369, AI857483, AI381986, H96355, H03283, AA886639, AI382033, BE219861, AI270383, AI927252, AA725593, AI933513, H87798, R40313, N91814, H12461, AI270420, AI351934, AA149365, AI095075, AW029024, AW135213, D20300, AA382563, AW887351, BE896465, AW887357, AA991646, AA236258, AI371518, AW887411, N95628, AW374703, N66449, AW887340, R18960, AI923570, AW769598, AI312435, AW948970, BF793017, AW003133, T24439, AW022616, AI660981, N86334, BF882909, AV735057, R49119, F03575, F03574,



HSLJR04 HCYBG26 HINGEZ52	845	874369	1 - 1875	15 - 1889	AF191652, AF191651, AF191655, AB007956, AF191654, Z74617, and AF067803. D79551, and D62420.
	846	874427	1 - 382	15 - 396	AA305281, AW962352, AW188435, BE042762, AU124525, AV751184, BE904633, AU128008, AA865072, AF118637, AK001419, AF192387, and AF239767.
	847	874434	1 - 2030	15 - 2044	AW516242, AV725115, BE176779, AW961941, AF1570379, AF1559155, BF696636, AA904265, AW517143, AF1632377, BF665204, AL526910, A1908495, AA194914, BF700570, A1982908, A1803264, AF1633577, A1084507, A1128085, AA532742, AA907767, AA452533, AW591165, AA443367, AW452815, AA531126, A1473675, AA446943, A1539836, AA884619, A1580399, A1374846, H06611, AV753197, BF000410, BE731087, BE768510, BE768736, BF435883, BE744744, BE768747, BE176834, A1800892, A1651364, Z44955, A1285463, BE768744, BE768569, BE768502, BE768616, AW993029, AA902992, A1908497, A1337672, AL527069, BE768609, AA252141, H07121, H01246, BE768495, R68930, R36894, AW169967, D61478, BE897309, AA255657, AA194915, AW193058, AA433980, AW183446, Z40704, BE261655, BG163270, BE541795, BE768465, R39412, BE763768, BE788891, A1049770, BE769273, AW905715, BE769267, BF828736, AA348650, AW904986, AW904983, BF244108, BF693493, BE671647, BE768678, BF693710, BE768715, BE140267, AW806502, BF374293, A1652350, AX011642, and AK026904.
H2LAY37	848	874446	1 - 2110	15 - 2124	BF034560, BE799666, BF793199, BE269289, AW960415, BE537586, BF688463, BE887882, BF965898, AW959934, BG111082, BE735957, AW673634, BE895085, BE302774, BE387075, AV709329, AA447249, BE266632, BE297860, BF511242, BE617837, AA868337, AW403529, AA682464, A1018520, AU159352, BE836742, A1937152, BE741975, AW806987, AA307180, BE279607, AA315814, BF365698, BG033916, AW028058, A1264178, AW802811, BG054841, AA524689, AW152265, AW731628, BF725946, BF510162, BE205911, AA449314, AW071947, N24989, R83173, W76161, A1417359, BF378742, AU153106, AA533087, A1869267, H93269, BE794278, BE782399, BE742535, AA972773, A1362084, A1144350, AW403175, T27076, W73886, A1354553, BE162755, BF205235, AW383581, AA281893, BE514688, BE617371, BE902001, A1740687, N76349, BF980456, AW514602, AW771177, A1937117, N92758, N91323, BE694604, AA774296, BG106930, BF305287, BE155676, R69667, BE891684, AW959942, H72455, AW374364, BF155437, F11244, T27065, BE798908, N70080, T03761, BE155626, BF971206, A1418588, BE065554, AW748996, BE155602, AA480587, A1356770, A1249170, W60541, R70825, H73749, A1050012, AW050481, BF838994, R76771, AW749000, BE155633, BE065555, AW382732, A1092071, BF087084, H52372, BF837341, BF087090, BF087043, R76458, A1523534, BF108924, BF087091, T58620, BE205889, AV745171, N55356, AA449877, BE155599, R88107, BE278962, W19412, BE155702, BF591518, H60235, AL048494, AU149657, R24811, N24492, T27075,

					BF837352, BE931696, AA181618, R69580, AA281736, AA533184, F07719, A1039628, A1374956, H99209, BG002249, A1284323, AA335131, W19218, R70775, BF432382, A1002926, AA181651, AA380316, BF087040, R34444, AW753932, R22367, A1189421, T31828, BF918667, AA705044, W25344, R48978, BE746479, BF203302, H52373, BE858444, A1292928, BF918595, A1193786, A1300928, R42927, A126890, BE301819, A1956012, AA760621, A1566649, BF087068, AA449570, R31753, T27066, AW798158, AA665508, BF984532, N54384, R28213, A1719518, A12929364, BF841064, R27881, F08906, F03976, N33515, AW748995, A1523157, T06126, A1687330, R21890, R27961, BG002262, R26955, R45540, N43795, BE155628, R27867, BE153433, BE155670, AA568919, BE019385, BF306920, W27612, BE243252, AA449830, BF835472, BF837355, T32442, A1471159, AW090723, BF954667, BG035219, R26728, BF954666, A1039074, BE065424, AK001344, A62298, A62300, A82595, AB002449, AR092424, AR070327, AX033851, AR060385, and I14842.
HCRND05	849	874528	1 - 1449	15 - 1463	BE312404, BF316832, BF314749, BF315081, BE314877, A1760170, BF314377, BF315285, BF206474, BF829200, BE262228, BF310453, A1150687, BF809865, A1158613, AW273858, A1148518, A1149720, A1400198, AW062695, A1924082, BE262581, AW087415, BE047624, A1689214, A1684707, BF207275, AA526748, A1566857, A1377786, AW167628, BE161394, AA525309, R65808, R32753, A1927229, AW663929, R32754, A1242434, A1927230, A1701965, A1956002, A1867076, A1156607, A1221593, BF315651, BF351668, BF206107, BF314579, A1364630, and AK022603.
HCRNP66	850	874529	1 - 522	15 - 536	AW392670, AW604723, AW858526, AW858525, U46347, A1119457, A1134542, A1134531, AW804686, A1134536, U46350, A1134527, A1043003, AW363220, AW384394, A1134533, U46351, AW861889, A1119324, AW858455, BE705903, BE705906, AW577135, A1119443, A1119396, AR066494, A1279014, A1251859, AX030435, AR069079, and AX046357.
HNTMD17	851	874559	1 - 1823	15 - 1837	AL527594, AW967487, BG032824, BF984614, A1949652, BF476493, AV761591, AV762400, A1149224, BF211531, BF693783, BE739312, A1685745, BF239022, AW195069, AW612290, A1052515, BF243286, BF216945, BF669995, BF238940, BF699936, BF247385, BF027861, BE502492, BF028644, A1156747, A1697062, BF589168, AA280974, AA707923, BE671578, AW591068, BF696615, A1218290, A1199847, BF976945, BF207926, H98774, A1144534, BF246727, A1073884, A1668804, N46000, N23495, BF210938, AA011443, A1689592, AA251688, AA011444, BF670972, AA453078, A1436247, A1080750, AW248798, AA716253, A1275839, A1122970, A1453068, A1768147, AA844253, AA718935, AA725825, AA199845, AW268712, AA682515, AW838099, AW339219, A1498394, AW339546, AA772711, BF445503, A1445896, AA719969, W60548, BG120682, AA917362, BG168012, Z39539, A1003641,

					AW084055, AW084063, AA251094, BF435876, T77877, BE566386, BF697047, AI536979, R15292, BF215896, Z45463, AI942282, AA506048, BF688027, AI623949, F03470, F07768, AA83154, F04328, BF977907, AI611294, Z42543, H22527, AI674943, F02062, BE738868, Z40852, AW971524, BF688108, AI364258, AI962091, R42198, Z44339, AI025438, AA452910, AW235780, BF679924, AA091738, BE881884, BF666663, R58217, F06562, W04953, AU125593, AW377760, N45999, N55694, BF350996, AI985580, AW804489, BF968536, BE769555, AK001902, AL117543, AK022695, AF244542, and AL132821.
HMCQZ52	852	874610	1 - 1503	15 - 1517	BG167520, BF246502, BF031122, AW814060, BF222363, AI638649, AA554045, BE940623, BF102783, AI916034, AW363225, AW363239, AW363251, AI636959, BF247687, AA994913, AW195875, AW853933, AW363235, AW363241, BF211275, AW814059, BF349386, AW843782, AI824374, AA928829, AW843781, AW363263, BE167242, BE867781, AK024865, AL136084, and AB048901.
HOSOL09	853	874620	1 - 1416	15 - 1430	BF793567, BE894883, BG261393, AI913535, BF696173, AI762854, BF111628, BF223142, AU150744, BF694284, AI677912, AI758705, AW968852, BF130221, AI825702, AI740876, BF445423, AU150024, AV651084, AA412665, AI800271, BE871943, AA883055, BF031657, AV651773, BE568561, AI823434, BE537311, AI134753, AA845774, BF526053, AA491093, AW204604, AA598723, AV684088, R73497, AI535824, R73498, AI134752, AV695057, AV697599, AV691590, AV691627, AU128462, AI535821, D62016, AI332677, AA993841, AA293681, BF214247, BF793500, AI598069, BF993112, BF995707, R77771, N68128, BE541011, AA761684, AW748412, BE939096, AW370473, AW370408, BF377686, BG167577, AI758562, AI754802, BF987010, AA075272, AK022558, AK022818, and AF233321.
HLQH148	854	874643	1 - 1709	15 - 1723	N62913, BF028797, AU137173, AA453825, AA453744, AI028283, AU157061, BF366160, AI804261, W01391, R53262, R53263, AI084483, H09694, AI808264, BE764811, BG005245, R43890, R19537, BE565706, BF944700, BG011233, BG007528, AK001975, and AB040894.
HTTDU01	855	874708	1 - 1641	15 - 1655	BE311749, BF313052, AU137438, BE273683, BE739364, AW105143, AW664998, BF698023, BF666604, BF670879, AU126957, BF669135, AA307599, AI971445, BF216844, BF701464, AW614994, AU154397, BE896630, AU132973, AI017401, BF672677, N53419, BF541947, AI041077, AI864277, AW954675, BF700557, BG110382, BF576810, AI494173, BE173729, N53432, AA580971, AA196917, BE839275, AI613044, AA370694, BE831801, BE739606, BE958371, BF700305, and AK001355.
HOSMQ26	856	874847	1 - 1315	15 - 1329	BE891805, BG026162, BE891716, BE777516, BF185329, AW964042, BF247874, BF573747, BF239956, AI660037, BF897795, AW804995, BE939552, AW804691, AI299786, AA829747, BF697580, BE545900, H56186, BF697577, AU153511, AA352328, W38841, AI161351, AI148191, R96121, AA995008, AI193065, AI017193, H56403,

						AA379061, AA190904, AA904070, AA379060, AA075300, BE887804, BF115041, R96080, BE963111, AA191311, A1439209, AA146764, AA146875, N92519, AA503807, AA649029, A1140061, AW518742, A1379863, BF222229, A1803876, AA577360, AA577361, D38550, and A1136303.
HE8FA47	857	874915	1 - 1578	15 - 1592		BF966613, AV684729, BE856253, AW028063, BF967767, BF476032, AW025205, A1936938, BF513083, BF112039, A1553845, AV721664, BE874632, BG032797, AW118083, AW968377, A1627928, AW629496, BF183036, AV725683, AW469390, AV654724, A1805469, A1818906, A1283403, AW074838, A1421269, AA037314, A1027476, AA926654, BF515401, BF739803, A1291304, BG036935, BE835358, AW001973, BE835421, AA937950, AA861680, A1304767, AA465446, AA731671, BF107095, AA970745, AA102090, AA923662, A1309195, AA463457, AA854770, BG058506, AA972072, N33417, AA568740, A1276170, A1718178, AW182398, A1002643, A1277271, A1384119, AA804207, AA905140, AA934048, AA907546, A1694431, AA610079, A1221597, AA905147, T87107, BF240167, BF978144, BF081332, BF977973, A1809900, AW086166, H90090, AA055922, N57371, BF370065, AA868005, A1268390, A1204193, N31503, A1554900, A1806731, R99432, AA056234, A1358287, H94078, A1041581, D62387, Z39858, A1290395, AA628706, A1220793, A1709171, R99338, AA872540, H90000, T87106, AA311659, AV736624, AA056233, T78750, D62053, D61964, A1525281, AA443018, R39324, D79318, H94093, D62068, AV661245, H94077, AW138972, Z43792, C15485, AV654948, AA258407, AW189588, AW270804, AW304064, AA099343, AA988126, AA907286, BF107110, T19459, D62335, A1873020, AA890504, W86144, AV747841, AA258486, D56193, Z21289, AW079830, AA037041, BE042468, T06711, AL080115, AF077038, AX002924, AX002922, AC010134, and U96638.
HMTME42	858	874948	1 - 667	15 - 681		AV755653, AL534593, AV682473, BF382207, BF694676, BF031924, BF672575, AV701144, AW960705, BF028851, BE245858, BE882775, BE274604, BE170497, BE565880, BE543312, AV763237, T30659, BE972450, T36307, AW844661, AV735121, AV763241, AV716983, AA207131, AV704933, R10567, AA341545, Z19513, R00732, A1036067, R07573, R00641, AA251223, BF209242, N53922, A1084025, AW844819, AW772507, AA476649, BE707511, AF117230, AC018812, AC020751, AC087095, AC068314, and AF229032.
HRADL60	859	874960	1 - 1645	15 - 1659		BE888196, AW384788, AW964389, BE931480, BF038263, T27255, AW384791, AW836699, AW631098, AA304886, AA099378, BE565374, AA451957, AA505179, T34664, BE220605, AA009984, AA281712, A1942304, AA304597, AV748389, R86031, AA405783, H72221, BF995073, BE167971, N28524, AA299273, AV648271, AW805908, AA443927, R30666, AA405718, BF755461, AA444106, BF112167, BF931193, AK025713, AC005702, and AC004167.

HWLMB5 5	860	875096	1 - 1935	15 - 1949	AW959192, BF945237, BF816021, AW804037, AI240393, AW079532, BE858477, AA233899, AI378406, AI334149, AI377537, BF726360, BF723157, AI682218, AW879254, AA917421, BF095556, AI302603, AI275504, AA878927, BF095624, AA687886, AA989418, AW150835, AI057286, AA358936, AA359473, AI499788, AI300066, BF095734, AA991861, R00226, BF215967, AW189691, BE741600, AA234127, BF960074, R00332, AA447855, AI168696, BE936719, AW879257, AW879253, AW392552, AW994585, AW392555, AW014053, U46347, AW271265, AK025273, AX035283, AK026918, U06713, and Z64069.
HUSGZ51	861	875230	1 - 1736	15 - 1750	AL517634, AL517971, AL515989, AL517972, AL515988, AU118450, BF686315, BE314606, BE311983, AU134418, BG176571, BF797461, BG176602, BE732624, BE297927, BE888878, BE902600, BE896889, AU136579, BF975619, BF306037, BE409563, BF794819, BG178336, BE251813, AI087290, BE255925, BG026595, BE254667, BE280340, BE408438, AA314782, BE267498, AW179125, BG121337, AA523272, BE900932, AI560684, BF313784, BE250782, AA579606, BE296863, AA640956, BG236079, BF211969, BE278280, BE672516, AI720545, AW851439, BE221249, AI074178, BE298962, AU159875, AW149795, AW410915, AW166078, BE260235, AW118155, AW960580, AU155010, AA205791, AI391438, AI765281, AI609316, AW608819, BE162597, BE301012, AU145006, BE674727, AU146132, AA307196, AA121597, AA315619, AI953795, N52021, AA779860, AW410914, AA703024, AA209384, BF674949, BE205754, BF541257, AI281937, AI310367, AI144263, AI344516, AI831727, W86254, AW302283, AI340041, AI279307, BE880639, AI436289, BE279603, AW105659, AA633097, AV737941, AW510312, AI695155, BE900356, W32418, AA551904, AA148974, W74338, AA421728, W93878, AI358041, AA197331, AI095949, AV709826, AA765423, AA505683, AW851262, AW305323, W44995, H59781, AW954290, AW264214, AI919481, AA188271, T36279, AA151175, AA291907, AW302470, AW341966, AA505639, AA605045, AA908343, AW440055, AA151174, AA221000, N75397, W42974, AI613309, AA489080, AA293613, AI720799, F12658, R92424, AA375932, BF527093, H89645, AI609078, AI915333, AA361612, AA385968, AI216131, AA577628, AA167443, F10273, AA917404, AA908807, AI022478, AI699705, N54634, AA205790, AA148973, T74241, W86272, AI918214, W05068, BF764918, AI565022, AA877979, BF740676, R06594, AA353399, W42975, BE019031, AI886523, R06593, AA831892, H59782, T16649, R06648, AA377635, R06649, AA327430, AA782357, AA706130, BE937092, BE547170, AA093998, H89499, AW264309, AW291011, AW876946, AA249242, AI735296, AW875704, AA888017, AA877802, AW169510, BF083673, N40506, AW273061, AA339272, W07625, W79791, W94149, AW179204, H95275, H04095, BG151465, BE938656, BG151073, D11556, AW376214, AB026125, AX048087, and AK001028.

HWDAN8 6	862	875249	1 - 1191	15 - 1205	BG029466, AV706034, AI222785, AI598156, AI131643, AA626884, BF036649, AI571234, AI094146, AI608599, AA203111, AA770214, AI338243, AA436283, AI085480, AA577314, AI224507, AW081389, AI131533, AA934527, AA631769, AI348255, AI870284, AI278842, AA971726, AI369248, AA551996, AI274146, AA279453, R63988, AA021050, AA551781, AI869674, R78856, BG056695, AA551934, AA678694, AW151699, AA284976, AI202603, BE740841, N64789, AA471054, AA730072, AA324335, AA707878, BE774969, AI081594, BE717107, AI520678, AI263743, H95836, N76200, BE770889, T15486, N80747, H30520, BE673804, AI918182, AW675278, AA283618, AI474363, BF806759, AI097586, AW135978, AI206104, AI242964, AA939087, R69061, AA922420, BE770975, BE879846, AA291551, AA872629, BG056718, BE223034, AA742282, BF111769, AI340009, AA770407, AW873159, AI301870, BE206676, BG056655, H05532, R34726, AI278735, AA532553, AI203119, N52849, N22046, AA962696, BG055182, D25896, BG011166, R23915, AW131992, H44615, AA419231, R49598, AA425955, T34728, AI718310, R79345, AI805179, BF840958, T46915, R63904, AW292997, BE208400, AA365446, C02552, AW371102, BF825608, BG010487, BE717176, AI651804, H95835, AI074093, BE903315, AW071145, AW952487, BG254191, AL021155, AX018173, and AX018065.
	863 864	875269 875295	1 - 457 1 - 2283	15 - 471 15 - 2297	AC010868. BF966926, AI096371, AW026983, BE671144, BE675256, BE856985, BG112325, BF313094, BE387702, BF527842, BE892016, BF791888, BE313399, BG030121, BF312239, BE395476, AI813506, BF568526, BE671545, BF126007, BE258514, BE018768, BE261326, BE784516, BE392280, AI022087, AA292263, AI814357, AA278622, BF526583, AI417005, AI952295, BF114754, AA488980, AI703092, BE675183, BE257824, AI922942, AW583230, AW411172, AA706326, BF433201, AW968974, AI222918, AI378263, AI275108, AW072442, AA009977, AW500651, BE313282, AI417028, AA461282, BF829851, BE543646, AI809307, AA485429, BF528516, AI283280, AI159815, BE383669, AI625949, AW193443, AI423425, BF836072, AA022909, AA278619, BE794420, BF836066, AA557198, AW104920, AA485593, AI057476, AI272950, AI334199, AI742862, AI033680, BG261000, AI087943, AA626036, AI805266, AA022977, AA460972, AA258336, AA804522, BF836062, BF870248, BF801885, AW136424, BE676774, AA844188, BF940449, BF509137, AI740853, AA278946, AW978449, AW401969, AW139461, AA040603, AI214120, AA063603, AW409894, AI424954, AI831028, W84629, W79625, AI568977, AI291416, AW473862, AA489202, AA488758, AW207462, H10442, AI038632, AI347231, AI564834, AW193442, AI799803, H51352, W79481, AI263269, AI359853, AI828643, AA854136, BF823633, AA258500, AA053907, AI017828, AI244605, BE302331, AA843762, AI986253, BF877350, AW262045, AI432653, BF804301, AW382297,
HFATS83 HBION06	863	875269	1 - 457	15 - 471	AC010868.
	864	875295	1 - 2283	15 - 2297	BF966926, AI096371, AW026983, BE671144, BE675256, BE856985, BG112325, BF313094, BE387702, BF527842, BE892016, BF791888, BE313399, BG030121, BF312239, BE395476, AI813506, BF568526, BE671545, BF126007, BE258514, BE018768, BE261326, BE784516, BE392280, AI022087, AA292263, AI814357, AA278622, BF526583, AI417005, AI952295, BF114754, AA488980, AI703092, BE675183, BE257824, AI922942, AW583230, AW411172, AA706326, BF433201, AW968974, AI222918, AI378263, AI275108, AW072442, AA009977, AW500651, BE313282, AI417028, AA461282, BF829851, BE543646, AI809307, AA485429, BF528516, AI283280, AI159815, BE383669, AI625949, AW193443, AI423425, BF836072, AA022909, AA278619, BE794420, BF836066, AA557198, AW104920, AA485593, AI057476, AI272950, AI334199, AI742862, AI033680, BG261000, AI087943, AA626036, AI805266, AA022977, AA460972, AA258336, AA804522, BF836062, BF870248, BF801885, AW136424, BE676774, AA844188, BF940449, BF509137, AI740853, AA278946, AW978449, AW401969, AW139461, AA040603, AI214120, AA063603, AW409894, AI424954, AI831028, W84629, W79625, AI568977, AI291416, AW473862, AA489202, AA488758, AW207462, H10442, AI038632, AI347231, AI564834, AW193442, AI799803, H51352, W79481, AI263269, AI359853, AI828643, AA854136, BF823633, AA258500, AA053907, AI017828, AI244605, BE302331, AA843762, AI986253, BF877350, AW262045, AI432653, BF804301, AW382297,

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HAPOO57	865	875330	1 - 2878	15 - 2892	<p>BE897903, AI207720, BF968082, AW953725, BF380509, AV698376, BG023942, BF572409, BG107589, BE738071, BF795586, AI568519, BF184542, BG114226, AA143047, BE393275, AW515777, AV714869, BF541469, AW168109, AA609408, BF669653, BF115650, BE867879, BF357377, AA868581, AW242902, AI057606, BF029429, N56907, AW966802, BF357352, AA481152, AW664127, BF239712, AI623695, AW664580, AA288023, AI539097, W51975, AA477324, AI571853, AI190703, W48680, AA150906, AV712744, AI051340, AI050869, BF209797, AI979017, AA479639, BF764926, AI336466, D19589, AW058037, H97703, AW964417, AA632153, AA434552, T30222, W90679, BG054859, AI591175, BE738227, AI440180, AI828435, AW900007, AW193921, AI364090, AA481230, AA403025, AI889568, W15362, AA917662, AI159897, W79496, N55040, AW105662, AI095249, BF983593, W38894, AA480262, W69239, W78146, AA742943, BF928514, AA769381, AI524433, AA427919, AW771872, AA405004, T10077, AA004675, AA551723, AI912293, W69113, AW675144, AI243906, BE328526, AA303149, N38921, AA293356, AI347437, AI910478, BG150250, AI970032, R65611, AI873930, AI097122, AA354187, AA764765, AA348250, AI587352, AA398425, AI500572, BF799732, H03063, AI220688, H03062, BF880217, N59269, N51221, BE242544, AA281842, Z40916, AW078605, AA318719, AA318431, Z45191, AA004254, AA283937, R18355, R18529, AA318723, AA352306, AA348251, R21184, H96302, W39321, R22802, AI368470, T10076, BE089090, N75368, AI914889, AI671045, BF919661, AA367666, W90680, BE766137, BF737592, BE208678, R41519, N46493, AA431472, AA292820, R42559, AA541549, BE006628, BE148919, T24635, AW380917,</p>

					BE565258, BE818245, R61333, AA094363, AA367665, BE006624, N76739, BE302651, R28832, BE765611, W01812, BE765929, BE765675, BE765585, BE765976, BE765793, AA398225, H08711, BE765898, BE006623, A W009946, BF817156, BE148946, BG166937, BF977054, AW752821, AI225015, A W438413, BE714408, AI439406, BE150353, AW276441, AW376950, AW376951, BF894381, AF130099, and AL110135.
HCR0G59	866	875405	1 - 742	15 - 756	AU118469, AI275431, AI168345, AA406609, AI280460, AA411636, BE930682, AI627293, AI628781, AI241297, BG259760, AA317871, AA598485, AI360110, AI968510, AI498174, A W468650, W02842, A W664912, A W954896, F34577, BE670348, A W665568, AI697614, A W079061, AI200289, AI804773, AA502751, AU145024, AI694751, BF846058, A W173045, A W300325, T49800, H85591, AA993934, AA468896, AA098853, H86495, AA039749, AA889681, AA909667, W87459, AI764965, BF930587, A W083698, AK001031, and AC005746.
HDTBL01	867	875452	1 - 919	15 - 933	AA203532, BF205946, BF796272, BE733004, BE384865, BE793374, BF315994, AI533065, BG253716, BE266999, BE790811, BE796063, BE893286, BE797306, BF311451, BE900405, AI533064, BE252440, AI885145, N93693, N41419, AA025727, AA845624, BF662920, BE673502, BE409052, AA004723, AI659644, AA854840, A W027228, AI741432, AI924412, AI096633, AA775840, AI799560, AA861825, AI086427, AI609775, AI332770, AA043284, AI147012, AI093396, AI334098, A W339068, N36820, AI127039, A W152492, AI310403, AI479699, AI333810, W37902, AI026761, AA779438, A W016793, AA846751, AA883270, AA043623, AA768520, AA481110, AA595137, AA599087, BE397162, AA004625, W21031, AI493429, AA705148, AA729311, W69693, AI609767, F24839, AI309955, AA147299, AA394002, AA725144, AA847834, AI028144, AA284640, F36989, AI015001, W46526, AA577464, AI074328, AI199865, AA719946, AI368754, N46038, A W952050, A W974250, AA700697, AI249119, AI284226, AA399341, F26291, H66106, AA639243, AI198805, W37962, AI863889, AI364330, AA639095, BE263224, H95487, AA834779, A V695666, AI204589, AA504802, AA480281, A V691477, W16986, AI300686, H66059, AI184257, H22374, AI357340, A W264139, AA638994, AA025726, H93397, W05101, R33568, BG165558, AA386074, AI268427, AA731877, H94967, AA282671, AI310952, H81961, AA846871, AA907906, AA983160, AA317755, AI088526, AI033455, BF209411, AA304404, AA834753, N74712, R33466, N92916, W04851, C03398, AA593219, AA356363, AI095031, A V654718, AI707597, A W162955, AA147187, AI968038, H93396, T25738, A X011676, AF250841, AI137489, A X012188, and AI262007.
HHFJY07	868	875510	1 - 539	15 - 553	BE177664, BE729827, BG121760, BF338210, BE172927, BF367007, R69492, AI889082, and AL158049.
HOFMV44	869	875558	1 - 1342	15 - 1356	A W968462, AA459463, AI219490, AA705318, AA459242, AA574007, N44974, N33185, AI246251, A W270960, BF439150, W96335, AI247249, A W118922, BE815328,



HSLJN60	870	875559	1 - 689	15 - 703	BE815333, AL049870, and AK000088. BE545153, BF848801, AA043203, BF848741, BF848765, BF804475, AA633788, AA779964, AA077596, BF801908, AA993172, AA721605, AA993810, N58116, W02490, AA250756, AA410936, AA812535, BE876668, BE972250, AA105026, AA978273, AA912417, AI015512, BF819706, AA323882, N74558, AC002542, AF234883, AJ277291, AF234882, AF234884, and AF234885.
HWHGQ4 4	871	875575	1 - 1225	15 - 1239	BE396242, BE883111, BG258182, BF905988, BE764655, BE779317, AW801067, BF815789, AI688169, BF528944, AA338146, AV690655, BF926557, R89027, AW801625, AA342099, AA339528, R73223, R15670, AA366174, BE181430, BF925266, BF926547, AW891182, BE764630, AW579250, AF232258, D86970, AF104984, and AB026497.
HCQDA63	872	875590	1 - 1415	15 - 1429	AL538426, BG167517, AV722943, AL538427, AV722721, AW589944, AI522107, AW590231, BF062663, AV714268, AV724112, AI378319, AA234318, AW614238, AI692527, W38548, AV704397, AI290259, BE464619, AI470641, BE045840, R19919, AA234561, AA973961, AV702216, F11345, F09005, R45139, BE671396, AI470879, AW132159, BE326399, AA482991, AA988920, AA146698, H59248, H28631, BF445024, H28612, AA205262, N56056, AW972158, BE544675, N90091, AA095089, H68801, AI341225, BE396063, AW001798, AA205188, AW852858, AC004067, AC002091, AC003695, and AL133240.
HMUBG89	873	875597	1 - 791	15 - 805	AU159073, BE549541, H98768, BF694425, AI300431, AW630304, AI076535, AI082879, BF510340, BF438110, AI689961, H03865, N33061, AI701454, AI458282, W07734, BF195232, AI263212, BF093304, R46614, T67479, AW615056, AI991356, AI654356, N78714, AI696043, N23489, and AK023901.
HCRC58	874	875638	1 - 2215	15 - 2229	AL533103, AL527989, AL528652, AL523047, AL527057, AL527093, AL530947, AL523026, AL527988, AL528651, BG028753, BE906415, AL515511, AL530946, BF795026, AL524166, BF529536, AL524167, BG109320, BG117399, BF109728, BG108337, AI373860, AW474739, AI142548, BE645078, AI160244, BE409222, AV748964, AI803364, BG253740, BE674527, AA732841, AI435516, AI095583, AI076620, AI167180, AI936640, BE858213, BE410603, AI339776, BF195536, BF195714, AA969232, AW593262, AW137670, BF056059, BE670549, AI391504, BF112238, W68702, AW207539, BE644982, W79914, BE537964, BF526060, AA917467, AI459137, AI148710, AA287408, BE327654, BF115279, AI762559, AI040652, AW026057, BE464991, AA522920, AA866005, AI016161, AA055361, AA625635, W23647, BF590067, AA707093, AA913826, BG014310, BF430963, AI083994, AI015839, W69531, AI796928, AI890078, AI830098, AA937098, AA305157, AI581290, C01766, AI050874, AW583835, AI199472, BF002462, AI097584, H92773, AI074517, AI074538, AI151312, AW028614, BF112128, AI674344, AA305656, AI990059, BF437108, R62238, BF940920,

				<p>             AI095293, BF111223, AI052777, BE538620, AA287357, AI085262, AI354825,              AW629524, BE887668, AW665508, BF196713, AA282043, BF116150, BF222052,              AI828501, AA989141, AI936558, AA917921, AW207658, AA581990, H66449, AI809556,              BG014227, H66448, AI087807, AA976485, AI089883, AI161211, AW102710, AI370809,              BE676767, AA282205, AA358542, AW054857, AA810757, F13499, AA876563,              AA215693, BF948701, AI084131, AI828164, W74293, F22539, AI870008, AI671095,              AA476727, BE876093, AA404240, AA831950, BF941746, AA026585, AA370269,              AI359885, BF057328, AA631293, AW340672, AI121501, N31738, D19607, AW470863,              AA423998, W68795, BG014223, AW301681, AA037423, AA744671, AI498589,              AW518575, AA705091, AI185927, AA425621, BF196679, W24523, BF195246,              BF432112, R83202, AW072175, AA886734, AI568422, AI128796, BF195629, AI423010,              W39033, N92339, N27093, BE327180, BG014314, AI906207, AI354764, BF196187,              AI829997, BF870069, AI216318, AI292222, W24115, AW627992, A1700186, AW166486,              AI808019, AI417379, AI274365, AI192992, AA327411, AI801970, AI560400, AI334057,              AW205138, AW135446, AI356227, AI418487, AI334250, AI301676, Z39418, AW206667,              AA026695, BF817268, AA449697, AA307877, W69448, AW136707, AI356196,              AI858772, AI268621, BE504370, AW054727, AW206873, AI077709, AW300595,              AI394380, AI369492, AI300626, AI702163, AW137374, BF832752, AI366348,              AW104420, AW628019, AI354931, AW137612, AW779061, AI349587, AW072219,              AI300618, AA362894, AI356229, N92547, AB030186, AI132110, A62300, AB028859,              AF058696, A62298, AR018138, A84916, AR008278, AR087649, AX033851, AX027925,              AR070327, AX047063, AX047064, A82595, AX021518, AB002449, X67155, AR060385,              Y17188, D26022, Y12724, AX035434, A25909, A94995, AX028130, AX020191, A67220,              D89785, A78862, D34614, AJ302649, AX020190, AR008443, I50126, I50132, I50128,              I50133, AX047062, D88547, AR066488, AR016514, AR060138, A45456, A26615,              AR052274, X82626, AR054175, AR074139, Y09669, A43192, A43190, AR038669,              AR066487, AR074136, I14842, A30438, AR025207, Y17187, A63261, D50010,              AR008277, AR008281, AR091537, AR062872, A70867, AR093385, AR066490, I79511,              AR016691, AR016690, U46128, X68127, AR008408, I18367, AF260572, X64588,              AR077702, AR074545, AB012117, D13509, A64136, A68321, AR092424, AR060133,              AX015396, AF123263, AR071754, AJ287395, Z82022, A85396, AR074141, D88507,              AR066482, A44171, AR088705, AX042372, AR032065, A63887, AR060382, R05573,              R83201, AA026584, AA282321, T12621, F10607, and AI471239.              AA827244, BF685458, BF508881, T79702, BF678577, T82086, BF750493, AW854300,              AW754459, BF736361, AW749155, AC010326, AK000820, and AK026676.              BE735031, AI817320, BF873444, AI147544, AI669712, AA610839, BE267317,              AI955720, AI056448, AI056793, BF437764, AA402968, AI982764, AA909968,           </p>
HWLMC4	875	875704	1 - 619	15 - 633
HFCDF47	876	875724	1 - 1163	15 - 1177

					AA643704, AV698895, AI499360, AW169601, AA832501, AI284966, AW272685, AA665839, BF855848, AV723055, AW627947, AA922928, AA653898, AA470857, AA911776, AI359243, AI423624, AI587214, R14201, AA316613, AA883307, R37484, AA531527, N74317, AI089835, BF930907, BF222502, BF858992, AA915883, H04547, AI381713, AW961300, AA702343, BF858981, BF792318, AV690851, AW969352, H04468, AA059276, D30942, W05225, and AA401934.
HCRNJ24	877	875794	1 - 741	15 - 755	AA827926, BF593180, AI860653, AW161711, AI808773, BE7673369, BE738694, AI636695, AA741501, AA740727, AI889967, AW853885, AW070423, AI075387, AW591180, AI754281, AI300905, AI150922, N62430, BE549526, AA142986, BF939598, AW243049, BF791127, T88858, BE935223, BE747336, AW298247, N67204, AI866174, BE737323, AU138991, BG034563, AA150916, BF894218, AI830959, AW361300, BE940709, AA630806, BE738126, AC006011, and AK002156.
HCRNT27	878	875817	1 - 542	15 - 556	BG023796, BF754616, BF309111, BF306586, BF973469, and AL035461.
HCQCC37	879	875825	1 - 594	15 - 608	AL046573, BF372979, and AF236061.
HFXXZ44	880	875911	1 - 514	15 - 528	AW960442, AA159569, AA305680, H64054, BF346733, and AK024637.
HWAAD1 5	881	875938	1 - 709	15 - 723	AI479334, AL525015, AW977338, BE221343, AU149247, AW438880, AI969482, AA740980, AI151466, AI670122, AA877322, N63143, AI422330, AA694453, AA766111, BE394853, AI277749, D20155, AI633803, AA910174, AU131672, AW002649, AF102851, and AK022700.
HDABX38	882	875997	1 - 1078	15 - 1092	BE731020, AU134027, BG258299, BE747762, BE882028, BG253085, AL044251, AU125948, BE781890, BF747692, BE869313, BF331660, AW812549, BE875296, BF747701, AA471381, BE172584, BF747559, BF688342, AL536911, BF331648, BF331653, AK000318, AK022744, and AK023347.
HETJZ14	883	876053	1 - 2977	15 - 2991	AI828035, BG252052, AV756210, AU123887, BE786223, AV701078, AV655712, BG165299, BG257125, BE617430, AA741569, AA723133, AA810931, AA465301, AA831595, AA521126, BG107088, AW470768, AA004609, R70874, AI004766, W27345, AV755560, BF213612, AW958490, AW504907, AA223681, AA765139, N55743, AA309793, AI547174, D30931, AW006835, BF031489, BG169549, AV749644, AA385103, BF572774, AA188081, AA210803, BF216538, AI792960, AA766608, BF691749, T93982, AA074968, AV758414, AA641746, AI928011, AV717340, AA766506, AW999671, AA974976, AA248504, BF577234, BF679448, BF028390, BF690890, AI564468, BE241647, BE087801, T18521, BF690968, BF130452, AW947064, AI634813, AF158555, AF097492, AB020645, AF223943, M65150, AK001220, AK025021, AF097494, AF279697, AF097493, AC005540, M22586, AF097495, and S80644.
HFCFB73	884	876111	1 - 2141	15 - 2155	BG171706, AU123343, BE891580, BE874295, BE616374, BF691382, BE272309, BE905589, BF205087, BF339506, BE781116, BF689464, BE790068, BG171568,

BE891260, BG027340, BE740064, BF038581, BF308118, BE746860, BE275518,  
 BF797209, BE866834, BF530627, BE868265, AI765620, BE394238, AA725071,  
 BF205315, BE735628, AV695789, AV691685, BF978180, BE304656, BF131943,  
 AW993028, BF701185, BF029881, BG122640, BF724883, AW271710, BF306634,  
 BE890307, AU129426, AV692294, BF308542, BE549980, BE855449, AW299864,  
 BE936367, AI916562, BE936346, BF088035, BF244421, BF088014, BF449073,  
 BF088012, BF088026, BF130329, BE936324, AI634990, AI654165, BF593983,  
 BG165351, BF939873, BF088032, AU151546, AI991405, BF923670, BE936318,  
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 AW614823, AI121534, AI912091, AI935478, AI955265, BF573804, AA699534,  
 BE857580, AI216100, AI718821, BE349946, AA587495, AI935972, BF821491,  
 AI025329, AA030011, AI308169, AI342565, BG012643, BF923020, AI300305,  
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 AA704532, AI018477, BF572796, BE302369, AW752990, AA115429, AA628480,  
 BF088010, AA774557, AW752951, AI131166, AW752948, AI686341, AI160398,  
 AA555219, AA045856, AW752946, BF923688, AI983713, AA780575, AW752986,  
 AW512904, BE677404, BE074717, AI917769, AW384997, BF446418, BF108993,  
 AI350088, AA774568, AI094833, AI207172, N98698, BF062926, BF928253, AI095199,  
 W31093, AA216738, BF240462, BF880533, BF923693, AI828631, AI356898, R24001,  
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 AW071576, BF247697, BF306125, BE762774, BG011025, H44274, BF923679, R51880,  
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 I89947, A08916, A08913, AB048974, AF119843, AK026452, AF113694, AF130082,  
 AK027102, AF119871, AK000074, AK025708, I48979, AK000618, AF158248,  
 AF271350, S78214, AL049466, AK026647, AF218034, AL162062, AF130075, AF113690.

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				15 - 821	AA313981, AA513970, AW966065, AW975618, AW966053, AW978648, AW966075, D80022, D59787, AW949656, AW949655, D59927, D59502, D50995, D80391, AW975621, AW960465, AW966013, AW966531, AW978634, AW949631, AW966534,
H2LAJ32	885	876142	1 - 807		

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HTPIQ89	886	876198	1 - 868	15 - 882	BF508637, AI808815, AI457550, AI911077, AI658931, AI916359, AW009684, BE962972, AW072228, AA579578, AA622141, BE873629, AW973509, AA295027, AA552628, AA594836, BE829872, AA551833, AI167645, BE829868, BE829869, BE829871, BE829870, BE829875, BE829925, BE829863, BE829935, AA576815, BE829887, BE829862, BE829922, W23220, BE829896, BE829884, AF114127, BE869579, AK025424, AB014603, and AL137668.
HTDAI12	887	876209	1 - 1087	15 - 1101	BF848594.
HWLGV14	888	876226	1 - 1299	15 - 1313	BF525338, BF344910, AW860522, AV715407, AF063527, AA573785, AW578252, AV657500, AI421829, BE439672, AI889106, AV713750, AW602040, AI815098, AW082282, AI444641, AW151910, AW602036, AA309046, AW251068, BF433428, AW967154, AI688082, AI935867, AA903732, AV682818, AI342309, AI469758, BF803392, AI301940, BE065335, AI336447, AI660665, AI625318, AI636809, AI559518, AW869448, AI216199, AA974182, AI336445, AV652658, AI476296, AW571542, AI272699, AA865622, BE065255, BF815382, R95048, AI832439, AW939111, AW939116, AW576712, AI908555, AW079674, AV657484, AW576713, BF906388, BE793561, AW802219, AV693996, AW276067, H71284, AI290972, BF342450, AI659188, H41084, AW802076, AV657785, H39231, AV734833, AI865986, AI333305, BF804890, AV656418, R76336, AI914585, AW984005, BF906389, AI590410, BE764658, H12385, AW613578, AA987621, AW886586, R48364, R94963, AV732819, AA639087, AW768254, C20912, AV654089, D45438, BF806092, AV747482, AI274107, AI720940, H70884, AA372940, AW881342, BE793009, AW576709, AW250334, AW887298, AW630142, H15022, AV748922, AI244423, AW192993, AA935031, AW801802, AW797240, AI199655, AW885618, BE796593, AI199654, AW885295, BE834145, H15021, AW885949, BE833516, BE828944, BF757501, BE834348, AW835280, BF525916, AI832803, AV694401, AA593195, BF948168, AW269879, BE154329, AW881925, AA886276, BF818724, AW886501, AI252522, AV699161, BF447300, R45920, AV699206, BF871123, AF115384, AK000841, and AC006479.
HCQB131	889	876372	1 - 543	15 - 557	AI491957, AA448825, Z42384, W86347, AK024715, AC002064, T73581, T73682,

1435



					<p>AV714253, AI536061, AA035307, AA420478, H24299, AA678544, AW391563, AW339527, BF572733, AA065097, AV727261, BE706410, AA613111, AI925770, AW391562, AA191512, D51223, D62210, AA847993, BE879669, AA652779, AI750126, AW838626, AW608197, N75648, AI436629, BE150450, N51447, BF246280, BF725758, AA743305, AX014004, AX013758, AL117597, and AK002171.</p>
H0BAE30	893	876533	1 - 1479	15 - 1493	<p>AW976111, BF438417, BE326988, BF448233, AA947739, BF590341, BF110651, AI400455, BE467219, BF845914, BE549725, BF792090, AW615210, AI079804, AW270919, AI435830, AI452944, AW611916, AA747433, BF970338, AI570117, AW207124, AI580309, N95645, AI309204, BE891399, AI338445, AI272895, AI499408, AW079078, AI797006, AI917984, N98806, AA282725, H01411, H00875, AI565322, AI240334, H01410, R74104, AA831514, R61345, AW150637, BG116831, AA301342, N69359, BF924928, R74103, AI672118, H00874, BE866477, H78279, AA514041, T49557, AW576423, H79404, AI739220, R31153, AI864092, BF087200, AA344229, AA693339, T49556, R31104, BG059394, BF378961, AA085178, N83511, BG223358, AI513763, AI373773, AI513817, AI513907, BE885131, AI513597, BF673068, BF795712, BG257535, BG110768, AI514129, BF726322, AI513631, BF724691, AI514087, AI349772, BE047852, BG058208, AL513977, AL515047, AL513871, AI514627, BE048071, AI515413, AW104724, AL119748, AW071349, AL513553, BE018334, BG031815, BF037097, AI513991, BG260037, AL121365, AL514473, AI633419, AV755581, AV682772, AI514155, AI537677, AI514935, AI514803, AI514791, AI475371, AI514919, BG164371, AI514983, AL119049, AI536638, AV682809, AI040243, AW198090, BG179993, BF812933, AL515041, BG110517, AW087445, BF726297, AL513911, AL513803, BF725644, AL121270, AL045500, AV681586, AI433976, AI871697, AI433157, BG252929, AI536685, AL513999, BG109270, BE876038, BG180996, AI609331, AV681630, BF727092, AI612913, AV682252, AI568855, AL513693, AV758110, AL514075, AV757158, AV762619, AL514325, AI514879, BG180034, AI269205, AI682743, BE904902, BG036846, BF794994, BE048131, AI682106, AI866457, AV756560, AI514511, BE785905, AI514303, AL121328, AI815855, BF970162, BF971016, BF970449, BF792469, AI538716, BE048081, BE963035, BE895585, BF341801, AV706777, BF981774, AV681951, BG108147, BE048065, AL514359, BF344691, BE877769, AL514063, BF725868, AL036802, AL515373, AI580927, BE874133, AI440239, AL513807, AI436456, AI590415, BE887488, AL047763, AV682441, AI499463, AI207510, BF527014, AV652906, BF969494, AI275175, AV673679, BE048026, AL513837, AV681949, AI064830, BE048319, BF970658, AV655645, BE048135, BF107577, AV735353, AL045903, BG252914, AV757455, AI687728, AI802542, BF726001, AI500523, BF343172, BE613622, AI815383, BE048179, BG120816, AI621209,</p>

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HDABK73	894	876546	1 - 2777	15 - 2791	AU123703, AI744148, AI744113, AU130720, BE897357, BG105308, AU137281, BF308835, AI860811, AI889014, AI765413, BE546221, BE670583, AW237314, BG248530, AW952369, BE502734, BE503479, AI765401, BE540301, AL042645, BF212478, AW500417, BG249708, AW674190, AI867571, BE018153, AW293518,

					AA534578, AI432178, AW169762, AA506984, BE389321, AA420605, AI142237, AA406169, AW591668, AW188054, AI147954, AA430324, AL040186, AI197943, AW502601, AI589634, AA569041, AI015938, AA433904, AA070872, AI188829, AI124780, AA421239, AI149224, AA420647, AI916160, W73655, AI076564, AI768356, BF592904, BE464156, AW772442, BE219974, AI638215, BG034042, AI123307, R51293, BE812953, W51790, AA172002, AA425349, AA565222, AA313542, AA825728, R35270, AW204507, BF306159, BG152825, AA100809, W28763, BF223048, AI222042, AI479185, W26572, W45413, W73608, R52192, AI160529, AW440819, AI422286, AI298011, AA171761, AA421279, R51403, H62930, R52097, R59309, BF880022, AA581790, W81419, BF844067, AI768849, W40121, AI708313, AW511347, AA373236, AW368276, BF844000, AA434583, AV747735, Z42217, BE702753, W81420, AI962360, AA325784, BF879714, R59310, AI271621, T25845, BF879715, T06069, F05246, BF880008, AA806028, Z38264, AA071023, AA815452, N54389, BE929180, BE929187, BE929175, BF092052, AA810542, AA383377, AI370602, R50941, T87272, BF149192, T87186, AW867815, F01748, AA947741, BF749400, AA773493, AA890049, AW591526, AI985779, AA984284, BF923416, AW272799, AL043147, AB007891, AC009079, AI157384, AK025058, and AK026926.
HEMHA04	895	876674	1 - 1581	15 - 1595	AW157077, AI928788, AI862521, BE618950, AI184766, BG115816, AI433323, BF970510, BG260737, AA479321, BE889129, AI332433, AA994577, AA478584, BF850029, AI366766, AI150895, AI620720, AA195559, AA442936, AI161291, AV760706, AW136295, AA904756, BE927251, AI364038, AI092864, AA425717, AW953803, AW205501, N79594, BF215829, T99528, AA446215, AI240414, AA446214, BE299441, AA232850, AW163046, AW937288, T93899, R66416, AI929048, BE619559, AW051014, BF212048, AV646038, AA364284, N36458, W01957, T93950, N43863, AA194718, BG117862, AI338823, AW139188, R52842, AW080850, AI284236, AA378547, T85659, R10338, AA037196, AV645908, R10339, AW055147, AW836503, AA436307, R81902, R05285, R00484, N42203, BG113905, AW836504, BE963784, AW818663, R00583, T99422, AA247115, BF914358, Z43562, H87028, AA812230, AI375631, R05342, BF847815, AW937285, AI693570, W24653, AW188154, R31139, W24879, AW665039, AI184747, BF893408, AI221366, AI671211, BE552302, AI097097, AU132176, AA455374, W19042, AL048808, AI742539, AW196756, AI685147, AW976608, AW975618, AA975508, AI820069, D80164, C15076, D59467, AW9666053, AV718530, D59787, AV701004, AV718692, C14389, AW959628, AV699550, AV718489, AV724520, AV718707, C14331, N33473, AV719822, AW973541, AW975621, AV720150, AW959202, AW978634, AW973307, D80188, D58283, AW9666531, AW966059, AV699866, AW949630, AV720878, D80043, AW960465, AI557751, AW973330, F13647, D59619, AV719557, AA975540, AW949642, D80210, D51423,

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HHEOX44	896	876676	1 - 2776	15 - 2790		<p>BG032216, AL526823, BE731068, AW961210, BG257927, AA088410, BG180328, AV703883, BE263038, BF981005, BG030126, AI921848, AL526855, AW612637, BE675369, AW590657, AA582953, AA129715, AW575752, AT768979, AW939345, BF795563, AA173576, AW006315, AW340019, AW593024, AA314374, AW294592, AI209090, AI146814, AW594006, AW408727, AW440271, AA442625, AI288689, BE242597, AA128304, AA917038, BF593212, N25149, H98630, BF447944, BE264878, AA447246, BF665325, AI214454, AI569471, AW188361, H23504, AW300860, AW440477, AI751632, AI751631, AI365108, AI288748, H23498, AW378551, AA305779, AI305805, AI246276, H15235, H05915, AW195659, AA233459, AL040280, H15174, AA580098, AA516088, AA807059, AI264064, AI374653, AA085808, BF764331, AA233499, AA442611, AA972665, AA173535, AA947515, BF761254, Z46082, AA436867, BE246825, AI216423, BF761247, AI680306, AA088533, AW961206, AA436854, BE879400, AA875987, AI537153, BE276849, AA883723, Z28659, Z24939, AA705973, BE242254, AA463884, Z40741, H79172, AA344697, BF764286, T34973, AA455337, AI636887, R45153, BE387790, R99373, AA476365, BF445431, AA332996, AA094260, BE242311, AA344742, T59749, BF445722, AI216025, BF090268, BF090263, AI564986, BE246900, AI657181, AI432566, AA476316, AI571662, BE173129, AA380487, BF764293, BF965160, BE173256, AA313261, AA128317, AI636873, AA133237, R48388, AW996483, BE242126, BF434676, AA447126, BE745358, AI675617, AW293675, AA300475, AW009004, AA095712, AA318049, AA587120, AL047883, BE790023, AA586931, AA603595, AA182886, AW082044, AI147306, AW081110, AI225246, AV759970, BF128843, BE251057, BF529088, AV716173,</p>

HWBBS84	897	876726	1 - 984	15 - 998	BE536263, BF529870, BG255834, BG031532, AV704882, and AK000294. BE566554, BF326749, AA775676, AA306997, BF080192, AW299505, AA295175, BE841230, BE080255, AW869573, AI660377, BF336432, AI698467, and AI925518.
HWLIP86	898	876744	1 - 932	15 - 946	AW024392, AF121164, AA863031, AW970190, AA639871, AA954258, AA877523, AW961147, AA741216, AI289873, AA515094, AA568880, AW272162, AA315933, AA314510, AW772645, AW135907, AV692499, AA887896, AA954266, BF229450, and AA577173.
HSBAZ37	899	876799	1 - 1222	15 - 1236	BE748750, AA195936, BE735826, BF794633, BE737548, BF793582, AI671142, BE872825, BG179979, BE378971, AW130003, BF030023, AW956203, BG165402, BE738538, BF692038, AI735466, BE894558, N73033, AI246516, AI590122, BE748450, AA782140, AW960365, BF679774, BE545903, BE501713, AI193251, AA313983, AA976229, AW771278, W17013, T59048, H04600, T59124, AW444639, H83008, T71419, BG168341, T71283, AV685078, H01077, AA531461, T59197, AA375752, R33127, T59159, T57392, H01078, H82791, T98388, H04624, AI934040, R33279, AW769736, BF246599, N53668, AW973069, T98387, BE789312, BG178312, AW630373, AI919560, AA325169, T51465, AA206548, AA420454, T57330, T81203, T80799, W76322, AI499522, AW962053, AV707405, and AK024673.
HOSXA83	900	877015	1 - 1030	15 - 1044	BF984517, BF438004, AA100220, AI167817, AA113216, AA3242768, AA085997, AA149087, AI493421, AA629345, AA625949, AA149086, AA669959, AA431870, BG170371, AI866312, Z28464, BF003072, AW517053, AA172371, AW173386, AI183937, AA431871, AA262957, AI036908, AI271960, AA085643, AK026086, AK000512, AK000171, AF172080, AF172081, AF172076, and AF172078.
HDQHQ51	901	877101	1 - 2712	15 - 2726	BF981980, BG024051, BF346373, AW405179, AU133938, AW846417, BF130381, AA278430, AI951459, AW130135, AA437355, AA427621, AW183077, AW044380, AI038334, AW503623, AI540554, AI224500, AA256905, AW663887, AW440059, AA702920, AI269240, AA662464, AW504999, AW572609, AA129087, AI042498, AW401902, AI865421, AA129086, AI023674, AA670374, U51141, AI355031, AA255481, AA600233, AA983314, AA661749, BF332122, AA278961, AI286001, AW504015, AW237708, AA512902, AW581119, RI6374, BE645601, AW973049, AI000189, AA872607, Z39825, AW338997, AK001798, and AK025839.
HWAAB4 6	902	877162	1 - 997	15 - 1011	BE870589, AV721943, BF310004, BF691496, BF035913, AV655998, BF983349, BG028544, BF977672, BE790080, BE893063, AA001247, AA461156, AW966472, W52509, AA278796, AA113971, BF211184, BF949224, AA450388, BF820186, AV661562, AV721798, R98597, AA384473, T71383, AA358118, AA092585, H97072, AW975644, AV707101, AA092587, AA730518, AA113979, AA113979, AA278188, AA228876, BG260290, AI700934, N43893, AW609406, AI655403, H81967, AA056671, BE048541, AI310227, AI284242, N35130, AI653805, AA339064, AW024417, AI347399.

					BE220616, AW439944, AA810828, AI394577, AI240675, AW469282, BE244023, H97904, T24653, AW966466, W84508, AW189861, D63239, AA278354, AA678091, AK026629, and AL122047.
HOGDT09	903	877219	1 - 2576	15 - 2590	AUI43178, BF795088, AUI25514, BG031811, BF984900, BE783087, BF701048, BF680437, BF701569, BE871703, AUI49157, BE883082, AII14799, BG025813, AW972781, BE219039, AA523704, BE326829, AI738666, AI332905, AA630465, AI808902, AI379226, AA936962, AW237413, BF239826, AI225060, N30395, AA481027, AW001041, AW972782, BE502266, AA587330, AI151240, BE084123, AA812688, AA195542, AI379148, AI004264, AW300639, AUI26982, AA180289, AI811274, AI261772, AW025729, AI418599, AW002896, AA878931, AW025796, AI886468, AI241082, AI913473, AA525768, AA194942, AA938582, R69549, AI336385, AI472706, BF034577, BG151642, BG029944, AI979336, AI968066, AA282317, AW903388, BF826476, AI287668, AUI60310, AA876827, AI699562, AA742997, AI754786, AI380256, AW085594, AI283450, AI597993, AL044439, AA180129, BF351822, BE768130, AI474872, AA282183, BF684258, AW998737, AA628042, AA627935, BE927874, AA916288, BE832366, AI362939, AW993237, AK001360, AK024031, AK022683, AL034430, AF132198, AX048071, and AC005183.
HTEGT79	904	877252	1 - 1851	15 - 1865	BE905127, BE546512, BG252294, BF527887, BG163935, AV706708, BG180654, BF790471, BF696520, BE737669, BF680252, BF681302, AW993264, BF222935, AW197426, BF666480, BF895063, AW607640, BE179457, BE568557, AW239197, BF576909, BF570531, BG171402, BF028168, N98902, BF240887, BE169103, L44427, BF570521, BF971450, BF894515, AA504728, AV734932, BF085007, BE464055, BF894507, R69655, AI673707, BF681475, BF514310, BF240911, R61016, AI909052, AA258746, AA041233, AW662950, BG111481, AA337216, AI823758, BG113968, BF059447, N79717, BF809685, H09430, W32103, BF811811, AW594114, AA432395, AI673708, AW071057, AI339473, BE674424, AI080052, AW970905, AI352433, AW073288, AW628366, BE350307, Z42694, AA507164, AA933822, BF222059, BE172885, AI347371, BE910283, AW842378, AW904671, AW083740, AI077969, AI287970, AI424748, AW799692, W31679, AA040796, AI084691, BF084968, BF084951, AW607551, N69911, AW971399, AA516035, AA258401, AA504631, AA758823, AI280486, R69571, AC009318, AF183410, and AF216751.
HOEJS41	905	877267	1 - 1720	15 - 1734	AI762874, BG181061, BG029934, AI674791, BE741765, BF666745, BE904311, AW954849, BE219311, AW954043, AW205759, AI276484, AI422894, BE465197, AA976248, AW009017, AI400084, AW341397, AI127180, BF447671, BG251035, BF196141, AI671157, BF475963, BE326318, BE218835, AW137128, AI039711, AI278183, AA455318, AI082634, AI536624, AI184021, AI912127, AW014838, AA884620, AI814108, AA992557, AA242741, AI420403, AA23822, AA976249,

						<p>H87044, A1871050, AA910054, AW341215, AA293585, AA960906, AA314432, AI215906, AA421611, AA291568, AI244330, AA884250, R88283, AW296512, AA928066, F37886, AA419081, AI522232, BE833848, AA659558, R77308, BF939420, H14133, H14077, BE833850, R86712, BF932337, AW802175, AA887721, BE833789, AA767469, AI468647, R86713, H45831, BF594455, H87708, AI474163, BF927687, AW247977, AW138723, AA382709, BF570928, AI572188, AA242762, AA406276, AI968554, BF800745, BF987769, BF742929, AI611453, AW249727, AI361199, AA923711, C00900, AW393192, AW393206, AA913682, AW945168, AF155330, AK000830, AF223950, and AF223951.</p>
HBXDI92	906	877294	1 - 1369	15 - 1383		<p>BF793227, BE738493, BG168528, BE888581, AI341661, AW157674, AV756714, BG167137, BF541476, AI928777, AI858796, BF031649, AA531300, AV761086, BF690588, BE042800, BF132775, AA665453, AA526155, AA812963, AW390190, BF691669, BF103828, BF207673, AI359284, BE296289, BF031305, BE269786, BF028210, BF978825, BF382914, AI929300, BF674686, AA279506, BF382839, BE567100, AW302554, BF132362, R41875, BF907667, AI276929, AI362446, BE866174, AA491616, BF213558, BF677539, BF104141, AA640356, BF664574, C75324, BE565705, BF247621, AA626070, BF217293, AV710756, BE565341, BF239704, BE897320, BF244694, BF216991, BE910189, BF131344, BE865802, BF977033, BF208161, BF238819, BF664677, AW898881, AV702371, R70167, AW768708, D11969, F09499, BF573749, AV735734, AI220797, BE567718, BF530748, AW962086, BE566686, BE565378, F02133, AV656370, BF571625, R48992, AA354295, BF694762, BE565373, AI216693, R71386, AA279505, BF758050, AA279698, BE737734, AW975170, C04080, AA279781, BF569536, BE770337, AI784286, BE565018, AW965330, BF541703, BE172093, BE886481, BE172017, BE172794, BF773050, BE708385, BE175486, BE175547, BF541685, BF818937, BF131019, BF212194, AI929003, AI289076, AI929378, BF570031, AF182412, and AK026338.</p>
HHFMHI2	907	877387	1 - 3864	15 - 3878		<p>AUI23654, BE614945, BF570217, BF570247, BE872390, AL525283, BF038800, BF343512, AW993641, BE622339, BE868734, AW965680, BF309693, AI096627, BE313918, AI750041, BF114871, BF569241, AI589918, BF308936, BF333907, BF569278, BF737162, BE168022, AI971206, AI567485, AI870013, AI492558, AW082735, AW071873, BF527054, AW068564, BE297137, BF732915, BF966881, AI494149, AI431911, AA158252, BE908970, BE259923, AI422826, BE858725, AI493768, AI363488, AI460100, AW104306, AA100840, AI755276, AA476207, AI992015, AW026405, BF818539, AI190217, BF195183, BG008965, AI738539, AI439206, BE392668, AA037160, AI361483, AA877117, AA425180, BF030331, AI372673, D80801, AA678831, BF344054, AI376927, AA160849, AW840238, BF738632, BF194781, BG149546, AI038534, AW951928, N77542, AI418906, AI359937, BF770908,</p>

					<p>             AI084962, AI356122, W88956, AI499098, AA325211, N94717, AA043409, AA789304, AA355373, AI372674, H63354, AA313505, AA351821, BE168407, AA349465, N62261, BF516245, BF920103, BE139062, D80800, AI937868, AA102488, AA150270, AA349466, BE788878, BG015537, AW339965, AA330631, AA158399, AW083453, AA156068, AA350488, AA161281, AW075493, AA654017, AI094530, AZ05125, BE709570, BF769382, AI686221, H41345, W89039, AA548969, BF083151, BF511513, AW338483, BE146202, AI334361, AA102489, BF802694, BF873805, AI961671, AA351820, AI570099, AA367255, BF370280, AW888417, T98883, AI926390, AA631107, AA301787, BF088733, BF740307, BG014702, BE622800, AW770217, BE816204, BF478261, AA143489, T18598, BE707955, AA102418, AW471322, AW189862, AA027021, BE764540, BF927721, BF326162, AA376185, AA904590, D31580, AI590590, AW082999, BE834120, AW753882, BF372972, AA702382, BE003963, W88756, AL042199, AW134571, BF372969, AI198157, AW009324, AI811883, AW003196, D29325, D29337, AI702386, BE834158, AA043408, R45887, H50462, BG113080, AI858384, BF945110, AI624949, BE834185, BE296215, BF927956, AB037838, AK024649, AK001199, and AX011688.           </p>
HDPF36	908	877396	1 - 4025	15 - 4039	<p>             AU134908, AV713940, BG254088, AW242873, AV655636, BG171383, BG107456, BE870660, BG121467, BE907884, BE882410, BF668229, AI638226, AV713772, BE504884, AU117218, AW014789, AI928114, AI478983, BF219146, BF590361, BG110092, AI075890, AW242842, AI675131, BF667382, AW014540, BE042921, AW372249, BE542118, AA630413, AI313145, AI653172, AA134046, N32561, AI752719, AI653034, AA489839, AA551242, AA480899, BE671745, AU144113, BE327275, BF111788, BF349616, BE328016, AU155713, N53472, BF061406, AI092888, AI479478, AA210774, W00846, AI761985, AI276657, AW151703, AI830594, AI589236, N41905, AI753040, AW590911, AI335745, AA489659, AI027334, W57952, W58099, AA846532, W58085, AI423910, AU149894, AI126500, W46149, W00854, AA923540, AA669903, W73619, AI620667, AA312838, AI041901, AA126268, AI357683, BF477473, W58035, W73667, AA325272, AW002525, W03762, N98674, H06349, AA700807, AA283647, AI752720, AI693833, AA064885, AV736659, AI093714, AI033028, AI167615, BE645395, AA902590, W46161, N23622, AA704812, AA126386, BF244472, AA910235, AV736277, AA480960, R40680, AI032472, N41728, AI675041, AI590268, R80530, AI344793, R80419, AA480245, AA991447, R86064, H06293, AI318610, BE569153, AA064808, AA810121, AA283646, H98584, N23621, AA811695, BF448760, H09433, AI241317, BG149922, AI470594, R40250, AA134045, AW181920, AA374575, H09084, T90456, AA569988, BG151498, H84159, H84160, AI700949, H89683, N66151, R14352, AA373949, R14299, AI538863, AA644291, N89241, BE537344, R91989, N68235, AA810813, BE242118, AI084359, N72476, AI547027, AA232625, H89759, AA564759,           </p>



HDPWZ46	909	877573	1 - 2910	15 - 2924	<p>           AW382356, AW371061, R57492, AA249229, BG249740, BF843733, BE219308, BF844627, H97526, D50917, AC007365, and AB041541.            BF968719, BF970102, BF974759, BE870739, BF313383, BG177864, AW960084, AA502912, BE258859, BG248298, AI050870, AW006390, AV721883, AI953093, AW468272, BE251201, AI675899, AW502481, AI870318, BE536266, AI923553, AW401673, AA310795, AI440347, BE936524, AW027693, AW501912, AA524413, AW574552, AI075145, AI359954, AA524099, BF880552, AI597640, AI083744, AW970671, W72039, BE675707, AW662450, AA456551, AI688921, BE327587, AW167025, AI970597, AV750735, AI028774, AW468042, AW083366, AA702590, AW008239, AW188383, BE856306, AW150222, W04875, AA133158, AI075281, AI380071, AI696180, AI919128, AV746681, BE326354, AI458590, AI690287, AW341136, AI290772, AA394112, BE670623, AW770679, AI564066, AI802599, BE670339, BE327534, N50705, AI912716, AW770931, BE670125, AI290867, AA515127, AI697475, AI459065, AI218744, AI214605, BE674024, AI697999, AA632926, BE218968, AI630774, AI268530, D52783, AI692351, BF224244, AI373390, BE671556, BF477598, AI304923, AA420978, BG153398, AI342694, BE045635, BE074737, AI348602, AI760118, AW081261, N70505, AI342675, AI348362, AI302027, BE074644, AI218972, AI340052, AI702729, BE670635, AI342752, AA459322, AA923137, AI300921, AI818912, AW166144, AA971517, BE328050, AI458565, AW341160, AW512533, AI214348, AI348572, BE674503, AI867102, AI032703, BF932868, AI761002, BE840091, AA436286, AI369001, R82177, N55034, BF433728, AI807719, AI814038, AW407844, BF433382, AA504752, H62722, AW748135, AW470525, AW470337, BF433923, AA446015, AA909765, R82219, AI000287, AA652891, BF433226, BE703532, AA829731, F06324, AA770635, T33986, Z39227, AA478999, AI702141, W76432, BE551369, BE551444, BF914193, BF941470, AI268398, H91642, AA987310, AI191730, AI268346, BE502711, AA459103, BE328095, BE466981, BE703523, BE549954, AA808738, AA995397, H91643, BE550199, R11808, BE348420, AA931687, BF879805, AA996234, BE467190, D81323, AA988933, AI215821, AI216187, AA977023, AA577322, AA976720, AA916695, AA436160, AA504654, AA661852, AI197990, AA938371, R43824, AA973530, D53592, AI002429, AA321769, BF913969, AA279841, AA524872, AA885803, D80894, AA512952, AA789129, AA971520, AI860335, AA357086, AA477935, H62806, AA923086, AA292315, AA974038, AA618436, BE184342, BF364749, BF879774, AA931944, AA844341, AI300623, BE831022, BE831018, AA989091, BF154962, AL039259, AA939247, BF195360, AA470467, AA250870, R37724, BE184319, T35082, AW603140, AW059597, AI023554, AA347047, AA916526, BF591381, BF901997, BF340243, AA902263, BF448311, BF886674, AB020713, AL117527, Y00826, AA687290, AA937729, AA968738, AI002329, AI291215, AI299477,         </p>
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HFPBS73 HBBE08	910	878090	1 - 1142	15 - 1156	<p>AI350166, and AI299545.</p> <p>AA027758, and AI526037.</p> <p>BE531175, BE615310, BF527071, BE531094, BE644965, AV648364, AA910364, N34695, AI809246, N41056, BF115228, AW964381, AA836750, AA455261, AA829730, AI742325, N27413, N53009, AI801368, AA938708, W67500, AA971739, AI420241, AI017351, BF222341, BG007409, R56380, BE348825, AI130039, AA465642, BF941301, R59120, AA771807, AA760722, AV683253, T33111, W67501, T30661, F21282, AI458383, AI694152, N47808, AI460007, BF749264, Z42834, AA226536, Z41034, BF849940, BF447457, BF447426, AV515347, AA016246, BF826729, BF954814, T03874, BE467282, F02360, F02302, AW204638, BF964079, N59351, N34898, H43293, C04542, F07962, BF349035, H43292, AI678586, BF964036, R56280, AA527386, BF948152, AA807824, AA948556, AA322394, R59121, BF952316, BF446775, BE830583, BE830581, BF858895, AA324607, BF850822, BF944325, N77162, AA886280, BE830573, N46624, AI031846, and AF004231.</p>
	911	878159	1 - 1683	15 - 1697	
HNFIB64	912	878172	1 - 2376	15 - 2390	<p>BE409562, BG030410, BF348149, BG248660, BE884381, BE515202, BG168824, BF312553, BE311468, BG030381, AV700543, BE311464, BE277436, BF982183, BG180015, BF206984, AW401587, BE386116, AI791733, BE389318, BE675753, AI186666, AW082290, AW261819, AI582235, AI923861, AI733423, BE858619, AW401585, AA034502, AW025899, AI923461, AA279106, BE676188, AI368066, AA601538, AI073451, AW275946, C17878, AW512757, AI697431, AA496076, AI635654, BG17627, AI085307, AA743237, AW614811, AW062388, AI744390, AI687704, AI952487, BF589052, AI359767, AA278843, AA622950, AI023202, BG253479, AI679355, AW176719, BF974978, AA643661, BF871023, AW516328, AI584072, AI598167, AW959457, BE350491, H07061, AI347420, AA921925, AI582931, AW403038, BF338508, AA918089, NS2992, H13318, BE292831, AI085302, BE140882, H96929, AA807882, AA063318, AI961257, AI829853, H07062, AA054731, BF944503, AA836647, AW026990, BG056082, BF872896, AW292750, AI589406, R40014, AA759154, R13953, H43157, AW151146, AA583559, AI366516, R13644, AI271948, AW080130, AA074128, AA740815, AI580964, AW079491, AI914663, BE838739, Z42175, R52685, AA406075, AI857247, AV718896, AI914835, AI701788, BG036228, BE732066, BF881535, AA300669, BE140897, D44930, BG164271, AI167197, AW340889, AA835728, AI940138, BE713052, AV719551, AI002358, AI784030, BE140898, AA054738, AI083786, BG252369, BF881534, AA908445, AA012879, Z38432, BE140828, BE719133, BF183164, AA526048, AA863181, AA464554, AA806696, BE269145, AA323070, BE396584, AI687300, BE906034, BF869904, C21388, AK024450, and Z92544.</p>
	913	878206	1 - 1396	15 - 1410	
HBMN78	913	878206	1 - 1396	15 - 1410	BE869983, BF308753, BF725174, BF304856, BF894731, BE242128, BE819466, U46430, and Z92544.

HHEKH05	914	878208	1 - 1599	15 - 1613	<p>AW062938, BE388539, BF914375, BF990518, AW583832, AA323188, BE938233, A1632409, AA311532, AW450875, BF915643, BF341662, AB014568, AL021707, AF202723, AC002429, AL353812, AL121586, AC008651, AC007057, AL049872, AL034423, AL022328, AL109804, AL022238, AC027319, AC004032, AL049709, AL135924, AC005740, AC023600, Z98946, AC005257, AL031255, U07563, AL035404, AL139286, Z81364, U71148, AL022318, AC003663, AC009086, AC016940, AC005318, AC011510, AC005730, AC010329, AC004099, AC006064, and AC008044.</p> <p>AL537127, AL529755, AA675921, AA675922, BE262438, AL522335, AL528593, BE892770, AL529754, BE789156, AW968234, AI538989, AW968236, BE735854, BG115842, BE734728, AL528594, BE677149, AI075918, AA256650, AA493371, AI094322, BE048443, AI688521, AI935462, AI802901, AI688358, AI767408, AA024843, BF912784, R52790, AI421046, AW020287, AW022859, AW022729, AW302197, AA083625, BF438369, BF914185, AI336330, BE792441, BG178467, W38780, AW250197, AW848654, AL525060, AI263242, AA456473, AL525059, AW845328, T66281, BE899479, AA527428, BE870520, AA478734, AL530537, W25302, H81794, BE168899, F09704, AW022849, BG112394, AL514699, AI919046, BF339743, AI889514, T06003, BE905535, R95684, AW962261, AL534280, AW268970, AI611368, BG180414, BF665591, AW026514, AL522334, AI816825, AI766194, AA768239, AA319841, AA364692, AI889524, AI394075, AA464368, AA632076, AI089651, AA173157, AI271327, AI921322, AA464386, BF594747, AA421113, AA306297, AA436809, BF836166, R13267, AI689262, AA417376, BE171169, BF346180, AB019038, AC007011, AC000378, AK001523, Z66003, AF217970, AL390183, Z61829, and AK026807.</p>
HHAUW8 1	915	878215	1 - 1177	15 - 1191	<p>AL530731, AL514224, AL529528, AL521100, AL528971, AL529527, BF972219, BE794951, BF346866, BF309641, BE729587, BF026792, BF568619, BF308650, BF026452, BE890995, BG110825, BE897940, BF683364, BE869863, BE736872, BF025798, BE560224, BF033881, BG165864, BE560741, BG033515, BE728889, BE543512, AL521099, BF026523, BE892910, BG027620, BE299033, BE408599, BE269141, AW796193, BE390234, BE276926, BF378458, BE264350, AL528970, BG031359, BE389596, BG105312, BE622000, BE896609, BE743319, BE910603, BE302514, BE264276, BE274491, BE743340, BF307179, AW963268, BF802557, AA452059, AL515227, BF568780, AL515228, AL514223, BG259896, W52611, AA291230, AW406604, BF339396, AW082239, BE868401, BF851552, R25280, H45835, AW196278, H67409, Z43714, R61777, H40960, BE877482, AA297937, BE622652, AI394287, BE146053, T32291, AW003201, AI654179, AI952990, AI825852, BG150149, H39059, AA298337, Z42953, BE967094, BE384286, AI224107, AI738533, BF365211, AI871094, AI183911, AI379594, AW149713, AI631747, AI697568, AI949918, AI376007, AA679218, AI288463, AA934029, AI494419, AI271450, AA371825, AA505600,</p>

					AA604759, AI126044, BG013260, AI982796, C03101, AI922055, AA809294, AI769969, AW954337, AI888073, AI573232, BE410228, AI278200, H45804, AI672728, AI424355, AW301292, AW172683, AI097331, AW594391, AA905734, AI660779, H40917, AA929008, Z39771, AI372977, AI468663, AI560425, AF007771, AI695083, AI670035, AI399773, AA284151, AI280353, BF685242, and R61778.
HAUBB12	916	878260	1 - 1273	15 - 1287	AI537234, AL537475, BF981545, AA581417, AI458845, BF982567, BG059931, AI828210, AU158891, AW445062, AW129177, AI969798, AI914020, AW117858, AW591275, BF515900, AI636420, BF431589, AA161371, AW083752, AW298307, AA244396, AI434202, AI446299, AI933838, AA244411, AA908297, AA747041, AL118899, BE327711, AI627327, AI738930, BF738507, AK025023, and AB006622.
HFPHS77	917	878291	1 - 758	15 - 772	AA829828, AW978886, AA724548, BE142180, AC002528, AK025532, and AK024866.
HBGQN46	918	878306	1 - 888	15 - 902	AA479990, AW293680, AI473367, AI184880, AI086741, AI081183, AI214276, AA742259, AA836754, R55060, AA251267, BF059531, AI285889, BF434159, AI813391, AW297831, AI819671, and AF038458.
HTAFG29	919	878308	1 - 1880	15 - 1894	BE794380, BE910104, BE793820, BE391720, BE153727, BE795052, BF430981, AI765782, BE791580, BE786309, AU130325, BF589402, AI631686, AI949441, AI885866, BF084385, AI963923, BF222715, AL118757, AW207902, AI307350, BF084395, AW189044, BE561650, AW025807, AI147100, BF802111, BE269577, BE267785, BE561193, AU150167, BE560154, AA516417, BF336453, AW971995, BF084384, BF941783, AA933663, AI206206, BF934914, F35646, BF352106, AA115092, BF089978, AI963973, AV703842, BF350587, BF510458, F28989, AI949861, AI766835, BE153458, BE746018, BE544995, AW238961, AA147718, BG029397, AB040886, AK023077, AK022840, and AL359624.
HDPCT51	920	878310	1 - 2078	15 - 2092	AI307240, AI816064, BE795087, BF529860, AI951554, BG054939, AI942492, AA641031, BF316781, BE263991, BE260960, AI687077, AI124930, AI423498, AA894728, AA614585, BF727209, AA777759, BF341298, AI335011, AW302233, AW188628, AI051728, AI418558, AA293436, AW071822, AI815981, AW969529, AI076557, AI311022, BF002146, AW451505, BE645020, AI377461, BF434923, T66288, AA311733, N26393, BF508157, ZA3604, AL532059, BE702964, AI761351, AA329668, H64102, BF229785, N40667, AW571491, AI364142, F07345, ZA3611, Z39666, T35364, R78689, BF092002, H12368, F12145, T66341, AI240745, F02935, H62593, H12315, AL532060, AA831948, BF364263, T35366, H64151, AI627686, AA293045, AI761531, AA503793, T29948, F03591, F09782, BG236443, AI909783, AW751045, AW328429, BF094196, H21480, AA160594, AW328430, C01582, BE696174, BE832407, AI015205, AV020592, AW950223, AW020397, AW022571, AW952457, AW961037, AW965144, AV651436, AV725055, AV729439, AV708653, AW951273, AV703042, AV727839, AV684417, AV708075, AV693527, AV650024, AV726605, AV707727, AV707889,

					<p>AV727980, AV704934, AV705323, AW961463, AW019988, AW022981, AV721957, AV696257, AV706987, AV703263, AV706775, AW020328, AW954384, AW023863, AI557808, AW952414, AW021178, AW961253, AW020425, AW963028, AW950220, AW022826, AW963490, AW958647, AV654896, AW953930, AV728592, AV645906, AV685966, AV709869, AV683415, AW022299, AV686346, AV690007, AW953657, AV728806, AW954031, AV727512, AW952439, AV727990, AW950247, AV698087, AV705938, AV702932, AV702026, AV705341, AV652443, AV707024, AV729259, AV701620, AV707296, AV704824, AV707767, AV706915, AV704182, AV697638, AV729462, AV703472, AV726229, AW023351, AW950438, AV688667, AW963915, AV655425, AW020406, AW949433, AW966420, AV727776, AW950035, AW950267, AV706744, AV702994, AW021182, AW020480, AW965840, AW023955, AW020876, AW023617, AW021059, AK026102, AJ293970, AF287269, AF249319, AJ293659, AF287270, AC009003, AF218031, and AF160502.</p>
HMACZ08	921	878313	1 - 2730	15 - 2744	<p>BE876197, AU133975, AW170131, AV723948, BG178057, AV652458, AW836234, AW608052, AA047046, BF104746, AA486037, BE395776, AW385580, AA488655, BE699041, AA932253, BG104619, BF671350, AA854943, AA418105, AA829456, AA243385, BE699051, BE936060, AI346694, AA418007, AA503398, BE793798, AA053835, AW067836, AA878478, AI309218, BF820483, AA287990, W37960, AI401102, AI279485, W37900, AI050735, AI423510, AA610711, BF939011, BE699047, AA701403, W30974, AA017371, AW385388, AA911160, BF928600, H10281, W32542, AA133579, AV721259, H81907, BE908122, H11712, AA657490, H09562, BF529092, R97956, BF810354, N68428, BF841567, AA018681, BF810349, AW838671, AW274397, BE699044, BF737894, H17436, AA133578, T03483, R93915, BE699011, T84200, H10225, R97955, N91220, F09018, BE244933, BE697384, AW474873, Z43397, AA677745, F11358, AW838680, Z42508, H08994, H11779, R18755, H86384, AW067888, R20010, R4826, T78746, BE546845, BF768165, AA676360, Z41104, AA191764, R12303, R61069, H80952, H01770, BF362799, AA857228, BE746764, BE092626, AW361033, BE246721, R12953, F11514, AA298600, AA233314, H82000, Z45386, AA047038, AA988879, AA776420, BF925722, R61792, F02025, BE074538, H37922, AA946813, AA058662, AA298811, AW954042, AI024907, AA515707, AA579408, BE744331, H38137, C02381, H80857, AA190438, AA059270, AW953912, W32541, AI253018, BF755527, AA252608, H39230, BF087406, BF841077, BE699066, F09175, AW608049, R36072, AW607934, AW242636, F02790, AA018740, BE092426, N47523, AW951415, BE872758, AA670010, BE080981, BF793691, H86054, AA655031, BE699208, AA017201, AA059226, BE562873, BE857637, BG011131, AA233315, AW169463, BE935974, AA910836, BF756516, AA504287, AA489248, AW452612, BE858890, BE699076, AA953019, BF930488, AA552521, BF932022, AW385586,</p>

					BE092405, BE047109, AW838675, BF752059, AB046801, AC010491, AK001799, AF274753, AF274752, AF001533, and AI346315.
HOHCA01	922	878348	1 - 2932	15 - 2946	AL528975, AL528974, BF525814, BF794725, BE563077, BF313190, BF316065, BF128719, BF312165, BF343012, BE273396, BF347316, BF529439, BG114779, BG120757, BE273363, BG260523, AW732415, BE314860, BE273362, BG057710, BF525937, BE904717, BF509864, AI688331, AW957579, AI814349, AI115506, AI439629, AI284322, AW103497, AA534218, AI115034, AI344564, BE868519, N99483, C04025, AI937550, BF906457, AI610392, AA580300, AI337432, R51351, BG056609, BE544282, D52671, AI299062, AI290762, AA778315, W73534, AI372555, N35640, BE904219, AI521482, R73371, AI475831, BF760199, AA393903, AA435644, AI285054, N30983, AA764845, AA830343, AA350716, AW152418, T87095, T87094, AI953851, AA027198, H78278, AI992099, AI336885, AI968561, AI990835, BE466066, R88005, AI492575, BF508612, AI336624, AA865531, BE548781, AI864257, AI380956, W46919, BE246984, AI675500, W46791, H78277, AI685131, AA640843, AW472870, AW899069, AI669123, AW733154, BF995406, AA482973, AA634802, BF437657, AI201952, BF445529, AW262269, AI135701, AI973010, AA366274, W73259, AI470225, AI470518, AI352386, AA337220, BF883752, AA614200, AA046535, AW274833, AW754223, BG236862, AA605082, AA987852, AA384495, AI783962, AW150047, AW083650, D61500, AA319239, AI885985, T33520, BF527932, AW365237, AA301208, BF032551, T03350, Z41992, AA350468, BF924517, BF344592, Z38276, AW378048, BF435056, AA383528, R32096, N26529, N21584, R51457, AI372554, AA027197, AA775109, AA045465, AW505247, AI620909, AW440715, BE857649, BE646114, AW351619, AW962061, AW603925, AW796148, AA348491, AW015422, H57761, AA325251, AW603927, BE839227, AC004754, Z69667, and Z69705.
HTPEF72	923	878349	1 - 2045	15 - 2059	AL532242, BE729312, BE728365, BE551210, BE670809, AI801973, BE220314, BE871116, BE045443, T76931, BE550677, AI689831, AI797096, AA490642, BF724949, AI279819, BE512936, AI859277, AI557113, AI814363, AW149061, AW966623, AI130896, AW445177, BE895798, AI590758, AW340246, AI800514, AI217709, AW014822, AI572054, AA972787, AI401375, AI081807, BE618709, AW296916, AI249069, AW452357, AA253220, BF446661, R96087, BE550843, AA906892, BE222292, AW501329, AI692288, F13036, BF446728, AI291231, BF224333, AL532243, R96129, AA483670, BG150204, AA758548, AW028830, Z43341, AW371212, AW371183, AW382292, AI279920, AA315610, BE788201, F11086, AV749370, AA233303, AA233304, AW339397, AI497843, Z39416, AI567312, BF036552, AW188816, Z17407, AW501332, AA385365, AW082190, BE831951, AI458809, AL110139, AL110289, and AI299000.
HDQFU07	924	878365	1 - 1853	15 - 1867	AV694248, BE895909, BE903848, BG027942, AV651246, BG109867, BF217526, and AI299000.

					<p>BF240140, BF669125, BE779936, AV650099, BF971092, AW875350, AW956342, BF107182, BF697022, BG166672, BF030619, BE881774, BE548671, BF247518, AI888053, BF667451, BE872808, AI768748, BF792803, N37046, N23484, BE872350, BF239058, AW664126, BF107464, W88681, AW338066, AW952476, AW402833, AW853145, BE971415, BF968304, AI636324, N24759, BF213364, BF665132, AA830565, AV697089, AA167203, AW023148, AI815125, AI685119, H98763, BE465545, AW853521, AW405572, AA481430, AW604402, AA481434, AA223067, AA902413, AW578436, AI954984, AI567716, AA045833, BE856103, BG258700, AA577610, H42133, AA553538, AA470843, AW467047, AW169016, AI961753, H38614, AA835545, AI262411, AW192401, AI193508, AA576473, AV660930, AW262909, BE927225, AA263040, AA481670, BE782154, W88620, AA394254, BG261374, AA730743, AA653560, R80477, AV651327, BF572366, AW193089, BF904780, AW470979, BF904779, AW295546, AA045967, AA329460, H42134, AA213836, R23904, BE243520, BE693582, AI263974, BF032805, AW293723, AA481674, H61494, BF674778, R23903, R80672, R61171, N79745, BF382094, H38856, AA328661, BF902314, R27506, BF243422, BF894060, T72506, AW361405, H62468, W07107, AI468319, AA362581, AW853797, AW337877, R27793, AW075817, BF031795, BE866675, BF905580, T82403, R27885, AW339053, AA377009, BF791479, AI708354, BF239244, AA485696, AW051074, BE866177, AI497897, AA485827, AW273624, BF905573, BF205089, AW022407, AI678575, Z21560, BF238897, BF699925, BE926278, BF239919, AW836245, AF126780, and Z64479.</p>
HETBV52	925	878370	1 - 1162	15 - 1176	<p>BG250946, BE890319, BG110053, BF304335, BE729884, BG036023, BE884990, AI143116, BE272181, AW978617, BF979791, BF688408, AA035605, BF683987, BG027642, BE728631, BE542648, BE781996, BE901361, BE385246, BF125301, BF312429, BG109070, BG030365, BE892129, BF035125, BE539771, BE709314, AW148662, BF435404, BE260755, BG027401, AW583187, BF103675, AA593746, AI452506, AI808192, BG033281, AA147979, AA976672, AI123332, AA846394, AA846398, BE263899, BG169958, AA134811, AW378962, AW152128, AI693597, BE737803, AA134810, AI091474, AI610361, BE567129, BE180037, AI168655, AA316462, AI017253, BF968821, AA601589, AW365838, AI004720, AA028198, BG256029, AI122822, AI144198, AI348563, N69654, AA306099, AA234250, AW779418, AA738360, AI143358, AI720974, Z46029, AA743577, AA594897, AI640487, AW953558, AI359916, BE743244, T27007, AA635902, BG033063, AA897721, AI623307, AI476694, AA975217, AW969746, AW003322, BG026000, AI970505, AA483597, AW405727, BE697896, AI913066, BE932259, T27008, AI185606, AA604266, R05542, F12789, AA236361, AI864948, R38524, Z41643, AW007428, AW015368, T52542, T75086, AI198108, AW006357, AI744938, AI911987, BG026055, BF216578, AA781505,</p>

BE878287, BF095030, T35592, R28411, BE387200, AA463665, F10397, R25388, BF665482, AW301409, AI334445, T52620, BE181498, BE697898, AA904176, AW805266, AA046223, AA740171, AW082589, AW268240, AI252039, AI255094, AW272015, AI345588, AI583449, AI309399, AI250968, AI307476, AI345889, AI349201, AI312995, BF507748, AW302961, AW302775, AW272042, AI345486, AW268769, AI345846, AI307425, AI348933, AW268247, AI224648, AI318628, C20688, AI252151, AW268956, AI376508, AI318281, AI313299, AW269108, AW303146, AI344815, AI335456, AI612156, AI435766, AI251074, AI054066, AI251564, AI307530, AI307548, AW075119, AW274337, AI312299, AI053567, BF054846, AI053815, BF055837, AW268250, BF733962, BF054732, AI053772, BF057979, BF054780, H73735, BF054743, AW301884, BF055931, AW268176, AW302926, BE857791, AI590227, BF315557, W01072, AI637584, AW198090, AW301469, AI564719, AI619502, AW302052, C02221, AI677796, AI513807, AI433157, AI434468, AI453322, AI357940, AI345802, BF812961, AI536638, AW169234, AI366900, AI569583, AI924971, AI689248, AI513977, AI613017, AI538716, AI923357, AW075667, AI514627, AA449768, AI863382, AI270183, AI873644, AI513553, AI514867, AI513779, AW118457, AW104724, AI568855, AI520785, AI514357, BF812938, AW074795, AW243820, AI926790, AI514473, AI828731, AI041772, AI687127, AA911767, AB041906, AI021707, AK024731, AI356865, AB040119, AI236698, AI389982, AB052191, X98834, AK000083, AK025084, E02349, AF056191, AF113690, X72889, AJ000937, U80742, I48978, I89947, AK000391, AL080060, AL133560, AK026927, AF113694, A08916, AL049430, I00734, AF118094, I48979, AL137459, AF090903, AL122093, AK024538, AF116602, AF116631, AK026532, AF111847, AF130059, AF125948, E00617, E00717, E00778, AB048953, AF130100, AF130104, U35846, AL133080, AF177401, AF106862, Y16645, AL096744, A08913, AK000618, AF104032, AL162083, AF090934, AF097996, AF130082, AL117457, X84990, AK026642, AF116688, AJ238278, AK025772, AL359941, AF113019, I89931, AL050149, AF260566, AF119899, S78214, AL117460, AF111112, AR011880, AK027114, S68736, AF113699, AF113222, AK025632, AL359601, AL122110, AB050534, AF130110, AK025339, AF116646, AF090901, AF113677, AK026597, A77033, A77035, AF090900, AF116682, AK000323, AF146568, AF314091, AK024524, AK027096, AK026959, AL359596, AF130105, AK027164, AF175983, AK025484, AX027129, AL137550, AF119875, A03736, AF078844, AF118070, X82434, AL122050, AX019230, AK025906, AL359620, AK026784, AL122098, AL110221, AL133075, AF130066, U42766, AF091084, AF116610, AB047615, AK025958, AK026741, AK025092, AK027200, AR079032, AL359615, AL162062, AK026630, AK026744, AL049283, AR087170, AB041801, AK026045, AL117435, AL049452, AK026086, I09360, AK000432, AK026583, AL359583, AF119909, AX019229,				
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					AL157431, A08910, AK025798, A08909, AF177336, AK025414, AF113691, AF242189, AL050393, AB051158, Y11254, AK026947, AB048954, AL133098, AL133557, AL442082, AF119865, AL049382, X70685, AF111851, AL050116, AL050116, AL137526, AK026551, AL080124, AJ012755, AF116691, AL137557, AL050024, AF218014, AL137560, AK025209, AF130075, AB049758, AF158248, AL049314, AB034701, AL353957, AF119894, AF113689, Y11587, AL110196, I33392, AF138861, AL133640, AJ242859, AF130092, AL050277, AL137523, AF113676, AL050146, AL050108, AK025254, AK026592, AK026353, AF119878, AL359618, AK026855, AF017152, AK026452, AL389939, AL133568, AL133113, AL137480, AF116644, AF057300, AF057299, A65341, AL359623, AF087943, AK000212, AL162006, AF116649, AL133016, AF130077, AL050138, AF079765, AL122121, AK026865, AL122123, AL110225, AK000652, AK027113, AF132205, AB047904, AF116654, AL353940, AL133565, AF061943, AK026647, AK026542, AF119871, AB050510, AK026885, AL137538, AF113013, AL442072, AL133606, AF008439, E03348, AF090896, AL133093, AL254496, AL345447, and AL345909.
HPHAB61	926	878406	1 - 839	15 - 853	BF354490, BF354491, W52563, BE274472, AL538054, Z43693, H09192, AA706920, AA371469, BF032961, R34999, BF082755, BF332778, BF082768, BF082759, BF082766, N57281, BF328302, AV724003, BE181224, BE009565, BF332781, BE830920, AA495939, BE830918, H26811, BF701671, and AB050514.
HTJN173	927	878407	1 - 1148	15 - 1162	AU143281, AV696409, BF340564, AV661143, AV654284, BF105002, BE770204, BF724794, AA426242, AW265010, AV721277, R97293, BF756268, RS4039, AV754053, N24257, AV647091, N42528, AL401202, N24207, W28694, AA317731, AV685670, AW965211, AA337330, R62707, N39820, N23591, H81447, R77868, AW466958, R18686, AA336076, AV722584, N35781, AV724479, AV723766, H51816, N91698, AA319346, AA299521, AA345861, F07903, AV655429, N32363, AL467853, AW273835, T86246, BF108990, H98580, AA329228, AV748360, AV750416, AL983083, R31616, BE301237, AA177091, T90151, BE931882, N57032, AW517301, AV682839, BE855731, AA745840, AA024532, H52309, AW351743, H52305, N29881, N30166, AU160395, BF935400, BE858560, AW132152, AA733046, AA865789, F04158, AL262355, AA740352, AL351711, AW371798, N52171, AW150974, AL217969, AA516285, AL285144, AL354657, AL620642, AL285129, AA425779, H99932, AL039767, AL077400, H97520, N26668, N23592, H99910, N23381, N35253, N29339, N24055, AW304128, H99567, AW512309, R54040, AW750748, AA775354, AL719093, AL672961, N68683, R63667, N59618, AA025292, AW371790, AA635661, H52541, H52545, R77774, H51817, BF529644, AW614704, BE069946, AL273018, AL474970, R32347, BE884988, T90050, T86141, N78171, T23591, BF935140, N32980, AA705215, R97054, N51909, AK024041, AF160216, AX013086, and AF077049.

HFCA119	928	878432	1 - 656	15 - 670	BE737159, AV683453, BF791773, W93646, AV736968, AA702011, AA876539, AW956002, AI633679, BF215394, BG249994, BG031757, AA805723, W93906, BF109912, BF940202, AI078580, AI419292, AI743235, BF691818, AV754613, AA429945, AA455042, AI128804, BF203359, AI826623, AA516431, AI989747, AA946978, AW183193, AI141284, AI989739, AV735012, AA911088, AI352478, BF475590, AA989129, BF215121, AA778301, BE751561, AA374253, T90569, AV759888, W19506, AA305052, W38899, AI198127, N89912, AI265924, W52820, AV685633, AA477156, AA987264, AA644621, AI263261, AI371387, AI349474, AI693357, AA338761, AI044098, AA780176, N95062, T83106, AI198595, AI631831, AA927461, BF064208, T97984, T98061, AA035640, AV744201, AA356704, AA338760, AI933253, AI206661, AA341602, AA295467, AI123118, BE715499, R02479, AA234074, AA479657, AA193255, BF439936, AF104628, AI220255, AI857454, BG057464, AF151058, AF135380, AF057306, AF145216, AF096895, AF135381, and AC010289.
HEOMO40	929	878455	1 - 1019	15 - 1033	BE792998, BE784640, BF791671, BE392026, BG178228, BE384422, BG112478, BF034379, AA280075, AI341850, AI685471, BE889886, AI971214, AW026541, AA625134, AI434060, AW780065, AA635928, AW072332, AI201571, AI018504, AI189383, AW150715, AA514603, AI222786, BF475582, BG058642, AA829969, AA465296, AW887710, H53940, AI971391, BE178584, AI126522, AI151505, AA527473, AI289125, AA430474, AI139537, AW804020, AA973593, AI422423, AW887689, W81548, R09558, T87884, AA653072, AA479457, F31659, AI282731, N90216, AI859244, AA588856, AA311454, AI085132, AA128540, AI927397, H53939, T87974, AA194261, AA429427, AA424897, AA479349, AA627660, AW079647, W81547, BE645736, BF755467, AA371654, BF761445, T84384, BE715848, BE715852, F36489, BE715855, AW804116, AA873449, AI934286, Z40834, BE004605, F04088, BE242795, AA193307, AA862408, BF803049, BF764149, BF852661, BF954607, AA345903, AA903329, W38944, AI126392, Z45204, F07750, AA186373, BE715864, and N95246. BG033329, AI526029, and N69786.
HBGQR89	930	878462	1 - 580	15 - 594	AA551087, AI526029, and N69786.
HSLHS40	931	878483	1 - 689	15 - 703	AW954841, BE566427, BF038744, AV714591, BF207443, AV717828, BF697755, BF701163, BG252752, AV696876, BF573438, BF696963, BF701614, BE866549, AA307912, BF697866, BF246764, BE080190, BF132505, BF541626, AV711935, BF210092, BE866389, BE566332, BF967412, BF030766, N33481, BE568990, BF687775, AW965380, BF185923, BF185757, BF967635, AV657676, H01141, BF699604, AA378770, N33874, AA853183, BE172695, R27699, BE785883, BF130673, AV762989, AA333757, AA255698, BF029394, AA313926, W25450, AA262083, BE080783, AA622346, AF068292, AF151899, AC006559, and AL136571.
HDPFT14	932	878510	1 - 2650	15 - 2664	AL523199, AU132797, AL523200, BG033844, AW752704, BF791612, AU134767, BE882970, BG023837, AW850681, AV716901, BG250459, AW242503, AW364612,

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HNHFY67	933	878569	1 - 2533	15 - 2547	<p>AA312450, D62428, T52084, AA312073, AA176195, AA176152, T03105, D62423, AA779034, T60233, and AA314825.</p>
HWLLR80	934	878628	1 - 1084	15 - 1098	<p>BG026214, AW962291, AI459549, AA455567, AA398062, AL449621, AI394051, BF108431, AA515452, AW044341, AW884291, AA456064, AV683744, BE546175, AU145029, AI699125, AA143102, BF361999, AU118479, BE833021, BF967276, BF967822, AA310438, T09094, BE088709, BF869437, AK021645, and AL139349.</p>
HL YAG35	935	878700	1 - 1123	15 - 1137	<p>BE379775, BE872144, BF792610, BE543890, BE895184, BF673057, BG256338, BE891847, BE743821, BE790582, BE867918, BG117915, BF969301, BG029557, BF970720, BF686005, BE622404, BE379843, BF037225, BE548179, BE617191, BE789663, BF311190, BF792222, BE293097, BG117792, BG116922, BF573664, BG179311, AV728537, BF697248, BE868922, BF681296, BG258783, BF216726, BF971778, BG104884, BF244945, BF541844, BG165973, BG256248, BF027966, BF208413, BF033943, BG117616, N31859, BF028710, AI525654, BE256557, BF132742, AI720884, AA487754, BF668158, AW080623, AI042438, AW405567, AA315638, BF726757, AV733019, W26597, AA626503, AI347948, H40397, BF805359, AI148666, AI342990, W27939, AA844517, BF208701, BF028915, W48798, BG107500, W40144, BE720067, H53915, AA973504, AA938181, T78480, BF675363, AI291752, H86324, AA973502, T96718, AI096709, AA888982, W17062, BE566980, AA019151, AA136931, H54535, N28602, T84197, BG121953, T96898, T96608, T78565, AV761243, AA741234, AA135077, AW664475, AW956486, BF880803, BF873448, R02614, BE828057, AV656709, BF035943, AI382540, H01254, BF027956, AA377618, AW954988, BF742185, AA337594, AA196164, R63004, BF793637, AA337440, T88814, BF793769, BF744139, AA863426, AA284748, AA356413, AW292189, AA356139, BE535527, BE701198, AA629237, BE819084, BE718093, N55890, BE704027, BE831116, BE703907, BE718092, BE838794, BE718089, BE704012, AI541208, BE703992, BE703900, AA148976, BE703902, BE704015, BE704013, BE819085, BE703908, AW574518,</p>

						BE703903, BF029578, BE718085, BE703896, BE703909, BE831093, BE831115, BE698144, AA196293, BE703962, AA865750, AI189512, BE701194, H75555, AA305021, AX013067, and AC004801.
HDPLU91	936	878742	1 - 1983	15 - 1997		AL514872, AL516234, BE793799, BE080106, BF966373, BG251449, BF309811, N78156, BE779576, BE467941, BG120078, BF966426, BF096205, AJ373463, AV703215, AL518949, AW237080, R37461, BG169757, AW292532, AI651775, AA700773, AI300661, R59143, AA953081, BG180590, BF096087, BF891990, T10421, R59144, BF891964, BF891965, BF739303, BF813604, AA888664, BF819368, BF810135, BF812951, H06647, BF815929, AI696193, BF739302, T18587, BF922736, BF811766, H06648, AI285373, R19087, AI285372, BF973387, AA282396, T19425, R63251, BF932431, AI064763, H02230, BF819317, AI702832, T80339, BF891969, AV729556, AV728909, AA992103, AI034374, AF231981, I05465, I09029, and AF111849.
HTFNS65	937	878748	1 - 850	15 - 864		BE613222, BE621608, BE731676, BE612766, BE727717, BE274110, BE512791, AW610041, AW961089, AW610040, BE340424, AA421991, AI128794, AA643252, AI553836, AI337866, AW044675, BE350024, AA424905, BE396274, AI936250, BE391566, AI161281, AI092684, BE387551, BF314230, R75637, AA627914, AI080133, AA256915, AI150197, AA253106, BE621355, AI344548, AA765783, AI433180, AA833911, AI769283, BE314965, BE261902, AA258905, AA668580, AI271742, AA745047, AW071080, AA410797, AI095804, AI128782, AI269638, AI269057, H94996, BE391923, AI384009, AI423951, AA255491, AI419254, BE743099, AA626290, AA594812, BF432512, AA909289, BF207341, AI220675, AA339832, AI559934, R75740, BE253327, AI198666, AA258813, AA936964, AI751181, AA502345, AV701498, AW176256, AA336836, Z21045, BE837254, BE388676, Z38718, AW610034, AA374638, AA253051, AA323970, AI122010, and A75147.
HDABG90	938	878755	1 - 1689	15 - 1703		BF436797, BE614225, BF092492, AI201866, AI566970, BF509280, AW104472, AI656009, AW295965, AA758867, BF057078, AI219471, AI452536, AI743932, AW197851, AW135409, AI916057, AA398022, AI041112, AA928706, AI041252, BE502568, AW196570, BF222963, AI971262, AW894346, BF917434, AA913387, H86566, AI492117, AW894720, AW971983, AW090197, AW472972, AA574312, BE937627, AA662668, BF001949, BF436942, AV723803, AA927047, BF939436, BF934163, AI538251, AA732212, AW103239, AA975494, AA393984, AI688854, AA947763, AI612107, AV705323, AI567582, AI036705, AI345477, BE138624, AI670002, AA743430, AI568865, AI689096, AI224373, AI341690, AW089844, BF811802, AI499285, BF752997, BG111199, AI342023, AI134830, AI349640, BF911517, AI250070, AW303179, BF871314, AI701097, AI336581, AI335207, AI344789, AV681781, AI583670, N25033, AI336631, AW301513, AW072719, AW806761, AW268221, BF032768, AW268302, AW301459, AI884318, BF724894, AI318159,

AI963631, AI863002, AI251963, AW301500, AI784233, AW302954, AW268122, AI719817, AI336582, AW080076, AI696714, BF766531, AI345587, AW301505, AI571439, AW104141, AI819326, AI491710, AW130134, AI633125, AI349772, AI539771, AW152182, AI579901, AI590043, AV747571, AI114703, BF669151, AI357049, AI538564, BF811804, AI690813, BG110532, AW081311, AI698391, BE896094, R41605, BG028055, AI349017, AI889189, AW151451, AI923446, AI879064, AI469505, AU118477, BG114528, AW834282, AW268164, AI499570, AI345415, AI591243, AI147292, AI587049, AI537677, AV759054, BE540578, AW051088, AI702073, AW301754, BF811779, AI623980, BF814449, AI250627, AI309392, AI349169, AI274647, AW194014, AI368579, AI240978, AI582912, AI433157, BG105895, AI589428, BG105500, BE878989, AW129230, AI335463, AI432644, W38553, AI560954, AI472566, BF812961, BG105812, AI638644, AW269095, AW026557, AI863197, AI349801, AI961403, BE393551, BG114103, AI915291, BG180273, AL514455, AI819545, AI366972, AV735732, AI589140, BG121222, AW301974, BF816042, AW236186, AI583475, AW269083, AI473536, N68309, AW301539, AI302590, AI479292, AI242248, BE018334, AI886355, AI765469, AW268963, AI345551, AW964095, AW366372, AL514015, AI954475, AI628325, AI249877, AW081513, AI340570, BG122005, AL514089, BE883591, AW084801, AW411235, AI950729, AI635634, AI679211, BG029058, F37450, AI689640, AL045163, AI890654, AW193231, AA127565, AI922707, BE279961, AI653979, AI921281, AV757404, AV709580, AW411351, AI648699, N36182, AI435268, AI570152, AI345688, AI572021, AW055252, BG253033, BG114304, AL514375, AW191844, AV709935, AK026649, AJ299431, AF112208, AL137550, AF082526, AB048919, AB047878, AL133062, I09499, AL080074, AF002672, AK027111, AF145233, AX015416, A91160, I48978, A76335, AX015915, AL162083, AL110296, AK000414, AL389935, AF008439, AF078844, AF119909, AL096728, AI8788, AK024992, I00734, AK027104, E00617, E00717, E00778, AR022283, AI5345, AF047716, AL050116, AF119843, AF130110, AK025465, AL137548, I89947, AL133637, A57389, A08913, AL133113, E12579, AK025435, A08912, S65585, A08911, A18777, A65341, AL137478, AB047887, X82434, S68736, AF090901, X65873, X66871, AR081734, AK027136, S76508, AF132730, I03321, A12522, AK026504, Y16645, AK027095, A76337, AL117587, X59812, AR074149, AJ012755, AF119336, AF130055, AL122104, AL117416, AK000250, A08910, U72621, AF116631, AR068753, AK026408, A08909, AF116691, A86558, E03671, AL117460, S83440, AL1353940, AK026855, AR038854, AK026556, A08907, AB016226, U92992, AF130056, S63521, A08908, AB041801, AL049460, AF116609, AL137459, X06146, AK024944, AF262032, AK025113, AL137256, AL137284, AX026824, AX026823, A58524, A58523, AK024546, AR068751, AL137657, AF119894, AF090934, AL133084, AF204760, D44497,					
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					AL050172, EI2580, AL137281, AL078630, AK026532, AB028451, AK027129, Y11254, AF065135, AL389983, AR072149, AL137560, EI2806, AK026749, AF232009, AF031147, AX040974, L13297, I92592, A58545, S77771, AL133010, L04504, AF124435, AR066486, AL050366, AF285167, A93016, AR050959, EI2747, AF116698, A32826, A30330, A32827, A30331, I89931, AK027114, AK024588, X66862, I33391, AL080159, AK000083, AF130105, AK026630, AF090900, AL137533, AF061981, AL137495, AL133014, AR068466, AJ005690, AR087170, A21103, AK026894, AL050208, A41575, AL133558, AB048913, AF106697, AL122100, AK024978, AK026038, AF218033, AR034821, AL133565, I68732, AC002471, AC005374, AL136984, AF113013, AF143957, AK024538, AL137271, AF116654, AK027210, AF275948, AF254119, AL050149, U37312, AL080163, AF056191, I89934, AL137537, I48979, AK000718, AL050015, S83456, AL133067, AF130100, AK027103, I52013, AF090886, AK027144, U73682, AL137488, X93328, AK026615, AF032666, AL137479, M92439, AK026600, AL080118, AL133560, AL137539, AF130104, AF113694, AL137526, S36676, AF171061, AB047941, AF076633, I32738, AL355713, AK025632, AF026124, AL110158, AF260366, AL157482, AF004162, U35846, Z97214, AL442082, AF169154, U58996, AK024594, and AL137640.
HDPQO40	939	878790	1 - 1737	15 - 1751	AL680867, BF110179, AA973037, AA868809, AW291165, AW169977, AA459970, AV748254, AA235170, AA460062, AA235071, AA811821, AA234899, AW243583, BF740727, R50382, R47735, T19463, AA765007, and AA748788.
HKAHL37	940	878823	1 - 1776	15 - 1790	BF688501, BE881450, BE250966, AI523831, AA402161, BE392990, BE798735, BF448645, AI809311, U55991, BE387679, BG005830, AA058572, AW576097, AI080305, BF526976, AI809303, W58112, AI219592, AW771597, BF969738, AI870771, AA306397, BE395222, W72743, BG056680, AI914114, AI356543, AA970516, AA393477, N23943, AA470469, BE908638, AA259063, AI220513, AW016176, AW028724, W31498, AI572664, BE255290, AA041503, AI933312, AI032420, W77922, AW071229, BF344608, AA324492, AI073475, AA918880, AA211889, BF688973, T19169, W04578, BE618638, BE314602, AI079603, T34432, N80749, BF967557, T34444, BF967414, BG036741, AA324169, AW406751, AA454831, AA018438, BF967636, AW954531, R64311, AA336112, BF967482, BE740875, BE742276, AA383421, AA349561, AI763093, BF196321, BE671746, AI138838, AA863481, BF940724, AW262487, T85783, BF966747, BE552382, AI380715, R51375, AV689075, BF222015, BF945161, AW970290, AW970296, AW970375, AV692451, AI372710, AA861445, AW970376, AA401573, AA534640, H20475, N91047, AA534821, T61174, T65029, AI372712, AA402818, BF967827, T08467, AI150344, BG027910, BE618092, AV686818, N72499, and AK026031.
HBXAX11	941	878833	1 - 1384	15 - 1398	BG171183, BE394832, BF345793, BF663932, BF663191, BE393442, BF129119, BG179361, BF341957, BE788377, BG119947, BE794162, BE619396, BF969290,

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HMVBC71	942	878904	1 - 1323	15 - 1337	AL515525, BF966744, BF793066, BE905040, AV697070, AW157314, AI816071, AL515524, AW261874, BF966307, AW163370, BF727408, AW151173, AW001897, AW236835, AW235694, AI801254, AI815990, N62855, AW117364, AW976507, AW150293, AA876913, AI635914, AA779526, AI584106, R40658, DI2158, AW148443, AA338451, AW166670, AI245076, DI2218, AW369838, D57788, AW631476, AA969485, and AC010382.
HHFMI06	943	878912	1 - 1006	15 - 1020	BG037056, BE735622, BE613933, BF038899, BE727444, BE788504, AL524340, BE273787, BE382875, BE391143, AL524339, BF978413, BF978052, AW965394, BE547588, BE048117, BG120035, AL535856, BF982434, BE178854, BG028203, AA504716, W27204, BE697396, BF087393, N41801, AL535855, AW603038, BF979829, AA034426, W27040, AA312370, AA406004, W28235, AA309632, AI906282, N32848, AV701475, BF090558, D60934, T30463, AI863431, T19063, T32338, AI971022, BE048604, AI937406, AV711602, W19696, T32187, BF903646, T30721, BE838731, AW151091, BE543336, AA658336, AI346867, AA399637, W90242, BF055176, W90243, AI811643, AI963120, BF827788, AI268013, H61501, AA053917, AW130080, AI038050, AI913778, BF247007, BE828382, AA330190, R16625, AA588282, AI469647, AW605910, AA642233, AA879123, BF819691, AA846647, BE549152, AI766372, AI631662, AA554675, AW473415, AA333952, AI085295, H92197, BE838722, BE181564, AV740503, T90188, AA709128, AA367963, W04861, BF513879, BF056039, D80978, AI650926, AI245252, AA779947, N70492, R16567, AA341326, AA180070, D60933, AA640652, N89051, AA504623, AI040870, AI469642, H98628, N89952, BE503958, BF940488, AI869508, AF161406, AF134159, AC007182, and AF270646.
HHEAG84	944	878975	1 - 1658	15 - 1672	AA032264, BF033184, AI524813, AW470107, AI002961, AI016098, AI627696, AW293379, AA032198, AI371775, AA203545, AA992804, BG150088, BF476629, AI375285, AI123325, AV733036, AI827261, AA255534, AI280365, BF956540, W26395, W84875, W84876, AW839964, AI025922, W27544, H40726, H20214, AI702204,
HE8PT01	945	878979	1 - 2276	15 - 2290	

					AA543043, W35225, R51448, AW291129, R51337, BE810654, AI202999, N91431, AA069274, AA255506, F09068, H20124, W23761, BE810801, AA364813, N55974, AW816800, BE810844, AA485410, BE825376, AA069502, AA247607, BE810770, AA902947, BF766662, N58074, D59395, AC008123, AL137534, AB050412, and AC003049.
HMVCG79	946	879020	1 - 1637	15 - 1651	BF971208, BE869819, BF676817, AA258513, N21319, AA258357, AW293672, BF772376, AI337429, H71643, BF389677, H63685, N31254, BE878141, BF447980, AW169975, BF312727, H04371, AI075876, AW182150, H71642, AI081147, BE876444, AI245423, AA625063, AF244577, AJ387747, AK025880, AK026921, and AF244578.
HSLJF33	947	879040	1 - 542	15 - 556	TI2297, and TI2296.
HFKJ43	948	879115	1 - 451	15 - 465	BF346036, AW161481, AL036384, BE262889, BF527646, BG250594, AI792419, BF981426, BF526011, BF348083, AL515587, BE892843, BE893935, BE312363, BE909963, BG259839, BF530993, AL530587, AL518333, AW403222, BE782496, AA349842, BE261745, AA682331, BE260138, BF527712, BE247341, AL534633, AL514800, AL518805, AL535793, BE313071, AL515494, AL532669, BF341785, BE779190, AL518527, AL518968, BF347094, BF345570, BE835080, BG259340, BG034329, BF304377, AI291107, C15937, AA319876, BF949074, AL298818, W76282, AA640877, BF316097, AL515586, AL518804, AA410938, BF347295, D54830, BE312509, BG110330, BF311257, W57826, AW239398, AL518526, N31096, BE881717, AA128062, BG107945, W68379, BF526417, AL518080, AL515493, AL518785, AL518332, BE171248, BE048241, BF874307, BE378687, H19895, BF975985, AL518079, AV748402, AA425456, AW879429, BE247452, AA953620, BF950119, T39453, BF947101, AW340681, and AF272043.
HFVHV40	949	879156	1 - 2356	15 - 2370	AL521837, AL527649, AL521838, AL526812, AL522637, AL516967, AL516968, BE796246, AW953470, BE733427, BE267273, BF984794, BF663431, BE746021, BE744871, BE727677, BE792949, BE891911, BG032127, BE732800, BE880158, BG029699, BF739970, BE547454, BF033906, BF341854, BE410292, BE407731, BE730406, BF974054, BE280141, BE276759, BE396111, BG033296, BE266155, BE313127, BE276474, AW245780, AW245421, AW170348, BF726872, AI125210, BF109831, BG259961, AA454052, BE387107, BF888054, AW960189, BE883630, BE207211, AW403899, BG024467, BF894254, AI208601, AA789053, BF432565, AI024666, AA031930, AW615502, AA032048, AI356072, W07699, BE296793, AI200867, C06239, AI369198, AI570447, AI332639, AI001138, AA622587, AW271396, AA632148, AI095065, BF907531, AI208972, AA934612, AI278658, AA846843, BE795828, AA758922, BE276249, BE386995, AA099581, AA431596, N62476, AW402977, AA864754, BF888062, BF110024, AA676722, BE901965, AI125001, AI570705, BE901394, BE797702, AA847774, AA609502, AI283903, AI493468,



HTXLR12	950	879160	1 - 2287	15 - 2301	BE902040, AA062669, AL522636, R87506, AA351375, H80426, AU141193, AW960190, AW387425, H24175, N80670, AI862627, AA621386, AA468656, AI034164, AA361930, BE733825, AA305197, AI245639, AA766390, BE304538, AA813039, BE733342, BE733565, BE019577, R98946, AA975165, R23321, BE736900, AW245820, AA644232, BE901113, R78483, BE265415, AW375225, BE266374, BE280632, BE539912, AW955959, AW375213, BE267493, AW375220, BG222879, AA137081, AW080224, AI763081, AI721021, AW089049, N79196, AW615653, BE464923, BE799665, AW089305, AA628355, M85399, R98861, R23244, T16377, T09166, AW078905, AW083608, AA226886, W73606, R87588, T04952, AI245727, N50148, BG223318, R10049, AI004405, H17382, AA380030, H80425, R78526, AA811085, AW371367, AW732928, R10928, BF931203, AA226922, AA136972, AW377690, R10879, AW374893, BE841909, AA353058, AW374895, AA995577, AI001882, BG223317, AI015767, AW363526, AA377815, BF931143, BE827975, AA557715, BG122019, AV747893, H24067, AA862807, T09167, AW771700, AA768482, AI338369, AI808072, AA100486, BF987667, AA774221, BG059802, BF931921, AA453634, BE539623, AA101981, AA884482, R16694, BF887393, AW749084, BF338616, AW473754, AW198229, AA357596, AA379498, AX015349, M62419, AF020797, AK023863, AX013089, AF067146, AC011475, AF139409, AF139395, AF139404, and AA719540.
HTXLR12	950	879160	1 - 2287	15 - 2301	BE891940, AW298651, W28069, BF955273, BF851322, AA112484, T08083, BF980203, AI967988, BF056991, AI634401, and AI652732.
HDQEX68	951	879167	1 - 2191	15 - 2205	AU126034, AV716555, BG164623, AW954175, BF691402, BF701787, BE614508, BF667845, BF381552, BE614004, BG163382, BF209847, BF245443, AI700760, AI810672, AW959626, AA436783, BF669673, W06931, AW955938, AW582367, BF697678, AW022757, AI913143, BF112000, AI936412, BF997086, BF670097, AA135575, AI890309, BF697090, AW025467, BF698840, AI653296, AI978760, AW383953, AA449107, AI823647, AI952893, BE006122, BE302288, BE929485, AW080154, AU152463, BF667528, AW296731, AI754956, AI827338, AI373709, AI521896, AU130547, AI813442, AA291583, BE568457, BE673206, AW021357, BE467939, AW994791, AU149920, BF211081, AI080994, AI567720, AW338668, AA553455, AI087408, AA687111, AA135545, W80751, AI304776, W80787, BE622281, AA058389, BF221597, AA831738, AI346950, AA036879, AI469452, BF094472, AA099187, BF218884, AA127603, BF695894, BF094482, AA639202, AA099186, AA814666, W80894, AW795282, BE695745, BF670143, H06621, AW959622, AI678362, AA248479, W80839, D19587, R33675, BE247088, AI879800, H13605, AA056735, BE151247, H07129, AA043962, R26226, AI350485, BF002378, BF924127, BE247084, AA135513, T30458, AA948517, H08414, BF095650, BF910406, H95950, R26227, R51350, AA036864, AW379265, N71754, AA337868, R23356, AW804288, H08415,

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HTPHG81	952	879182	1 - 1689	15 - 1703	AU124431, BE700940, BE700869, BE700936, AW960435, BE908235, BF870875, BE772035, BE700861, AI903097, BE772040, BE840628, BE700876, AI700395, BE700938, BE700862, BE700873, BE700945, BE700943, BE772042, BE700937, AW390483, BF525944, BE842730, BE842726, BE772099, AW514159, BE700941, AW582015, BE700904, BE772053, BE772066, BE772082, AA781090, BE772081, BE818958, AA305705, BE818955, BE772059, BE772019, AW170237, AW965129, BE840457, AW581975, BE830929, BE772101, BE818964, BE840434, AW339256, AW820559, BE772020, AI079309, AI140441, BE700851, H70004, BF849721, BF359589, BE700898, AI905362, R11344, AI022857, BG012510, AW517983, AI401014, AI379419, BE842723, BE818962, AI434349, AW673336, C15468, AA719006, BF439588, BG010792, AA703354, N50989, BE772047, BE772018, BE836162, H69547, AA574083, BE772074, BE818915, BE170135, BE840445, BE772086, BE772015, R09631, BE772087, AI251845, AI243536, T63151, AI983670, BE832289, T63006, BF091071, R06603, AA889063, BE772017, BE927455, BF110884, BE830923, AA565124, AW868068, BE830919, AI903834, AW752129, AW868069, AW674579, BE818892, BE818951, AA731490, AA344670, R07438, BE061069, AK027078, AL117402, AB007936, and AK001249.
HETFI66	953	879189	1 - 2924	15 - 2938	AL518456, AL518457, AL535309, BF036947, AW177329, AW365330, AW365323, AW365322, BE548852, AW365331, BE782972, BE252916, BF508656, BF062884, AW177280, BF349186, AW177293, AW751887, BE391161, AW177283, AI634419, AW751893, AI655929, AW751913, BF349185, AW177210, AW177386, BE644774, AA780277, AW177327, AW177297, AW375451, BF349184, AW177290, AW751911, AW365328, AI861939, AW751897, AW177364, AI459228, AW177371, AW177298, AW958998, AW751896, N26002, AW177209, W68094, AW365324, AW375444, BE258077, AW177291, AI693285, AW365340, AW177366, AW751907, AA988619, AW177292, AW177330, AW177326, AA774277, AW365333, BF034446, AW177214, AW177331, AI656566, AW177361, AW751914, BF056518, AW751917, AW177367, AW365332, AA992335, AW177295, AI092878, AI971537, AI457746, AA992349, AV688516, AI918057, AW751918, AW751919, AW594513, BE466006, W67657,

HUVCM58	954	879222	1 - 1737	15 - 1751	AW751895, AI376254, AI392759, AW751968, AI394739, BF223723, AA969118, AW751915, W76111, AI189622, AW375435, AW751906, BF314299, AI978573, AW589662, AW177363, AV686294, BF349182, AA503090, AI971536, AW751883, AW365326, AW751921, AW751904, AI341236, AI651158, AW375447, BF349183, AW751912, AW177286, AI022433, AW751963, AA706672, AW177111, N89594, AW590851, AI367753, AW751882, AW594007, AI122573, AI367809, AI057051, AW177372, AA533619, AI148731, AW365325, AW751922, AW177328, AV689990, AI917010, H53239, AI991691, AI985628, AW177302, AV693863, AW751924, AI652965, AW751908, AW177296, H53133, AW177323, AW236935, BF507786, AW751965, W22886, BG056010, H04031, AW751881, AW452390, H03349, BF933042, AW177369, AI637688, AW295685, AW177301, AW177362, T78023, AW365336, F24290, AA312013, AW196269, AA361360, AI858316, AW365329, T78186, N88352, AI203120, BF369773, AI825571, AL535310, Z38299, AA364876, H64669, AA004310, N52936, AW177324, AW177189, AA004399, AW177199, AW751909, AW177202, AW375456, AW451679, BE502311, AW375426, AW177322, Z42012, AI917849, BF110478, R47511, BF736836, AW751884, AW751894, T50235, AW375437, R19795, AL514935, AF067972, AK025230, AF068625, and AC009474.
					AU136625, AV758108, AL532612, BF691477, BF208141, BF526250, AU139755, BF576897, AU138444, AW361626, BF218355, AA326713, BF695259, BF102702, AA256744, BE173585, AA459236, W31760, BF531085, BF951257, BE866130, BE173471, BE173481, BE173409, BE173586, AA022820, AA046581, AA043189, BF966191, BF352288, AV734597, AV659955, N57339, AW971689, BF241889, AW452739, BF966206, AW813810, BE150505, AA830510, R19454, AA349280, BE173590, AW753423, BE502920, AA385915, H92698, AI566027, T61007, AI766639, AA446503, AA376823, AA446322, BF677334, AI147871, C20624, AA369579, AA369411, AI267646, AW827132, AA127618, BF966850, AI423223, AU157616, AA641529, AW074400, BE349039, AA043190, BE242785, AI719873, AA627345, AU156799, AI419387, AI031904, AI159832, AI932664, BF939730, AI934352, AI886950, AA854750, AI619780, AI719353, H88016, N62242, AI371803, AI097237, N54489, BF446754, AA022728, BE468183, AW103783, BE895637, AA528304, AI082158, AK002102, AF113224, AF208863, AC021019, and AL358133.
HDPGJ03	955	879294	1 - 715	15 - 729	AI268407, AI831182, and AF305068.
HUSIT07	956	879441	1 - 1425	15 - 1439	BF793263, BE744545, BE876004, BF970359, BF314317, BE392161, BE789681, BF695490, BE314349, AI150130, AW089589, BE141819, AW007662, AW630842, AI354986, W28029, AA371513, AI208668, AA526605, AW956282, AW024017, BF746464, BF746995, AW162288, F13749, AI696793, AV701116, AA176605, AW964231, AI753365, AI457597, AW819125, AW974932, BF941382, AV703259,

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HWHHNS 5	957	879514	1 - 1602	15 - 1616	AL049748, AC005103, AC003688, AC005184, AC010877, AL121928, AL049643, U63721, AC005089, AL163303, AC009134, AL136295, AC010134, AL445263, AC005682, AP000432, AL078581, AL078646, AL033527, AL161426, AB023049, Z97053, AL049709, AL139123, AP001684, AC004836, AP000558, AC002470, AC005207, AL133354, AC004583, AL109952, AC073316, AC007536, Z99774, AC004895, AC010458, AL031003, AC002350, Z84469, AC016637, AL022726, AL136137, AP000350, AC006241, AC002045, AL121868, AC004656, AP000556, AL049697, AL136139, AL159168, AL035404, AJ277546, AL136298, AL499628, AL121899, AC002400, AL163249, AL135924, AC007739, AC008805, AL049840, AC005899, AP000555, AL133211, AP001725, AP001712, AL024509, Z69653, AF314058, AC005037, AL133355, AC004531, AC005914, AC018751, AP001630, AL139395, AC069539, AC008745, AC005377, AF064861, AC010504, AL080314, AC010205, AC005069, AC004449, AC009247, AC023105, AL022311, AC005599, Z83844, AC002476, AX008040, AL049636, AL133551, AC007386, AC004510, AC004685, AC004805, AC009087, AC000064, AC004148, AF045448, Z93016, Z82244, AC007136, AC010451, AL022323, AP001331, AC000015, AP000065, AL121890, AL139333, AL157838, AC007308, Z97985, Z83826, AC004016, AC005921, AC005859, AL109840, AP000302, AC005057, AC005291, AL109925, AC006511, AC007510, AL031433, AC005998, AL122015, AC005224, AC003043, AL117354, Z99716, and AA508727.
					BE744935, BG024414, BE562674, BF109234, BE392666, AW377298, BE539840, BE905104, BG117806, BG118565, AW377335, BF964657, AW377300, AU144697, AW377370, AP970471, BE144586, AW752914, AW367852, AU159030, AW377374, AU159539, AA576526, AU159555, AI922500, AW377257, AI199486, AI123218, AA927738, AW377264, AA989195, BG056482, BE938379, AI091150, AA922738, AW752918, AW418802, W69888, AI560660, BE938389, AI612820, T81701, W69567, BF734737, AW752927, AW769721, AA742404, T81488, AW768836, BF475279, R71372, AW406239, HI1524, AJ084549, AW377389, R16877, AU118033, BE541711, AU141478, AL526446, BE880092, AI538103, AA807380, AA991853, AA468875, AW367837, BF476040, AW752922, AW377365, HI1886, BF948106, AF161019, AJ131890, AK022476, AF218027, AF283478, AK021600, AF176099, AJ131889, and AC003694.
HTTJH57	958	879541	1 - 1707	15 - 1721	AL536302, AI347130, AW027513, AW954660, AI660559, BF063427, BE910304, AI340321, BG230588, BG030487, AI214222, AU155474, AI803717, AW006987, BF038849, BG166086, AW301687, BE221184, AW016409, AI336534, AA015924, BF761125, AA307210, AA019155, AI283525, AA018238, BF756777, AA878131, AI269256, AA921711, BF229860, AI857978, AI090373, AI368031, AA017114, AW900223, AW403382, H84864, AI367923, R84448, AI284356, AL536301, AI080385, BE251142, AI350788, F29712, AA280994, BF761104, AA987803, BF808782, AA017329,

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HMSND53	959	879589	1 - 3978	15 - 3992	AL515934, AW957184, AL520230, AL520231, AL135399, BE618778, BE618245, BE782129, BF056891, BG121474, BG250670, BG168174, BE905489, BF966712, AI633878, AW515316, AL518067, BG032703, BG027920, BE042542, AW088411, AL536159, BE883723, BE218306, BE536123, BE644805, AL515935, AU131122, AL518068, BF087512, BG054496, AW207435, AW962355, AI752319, BF570490, AW771521, AA902264, AI818209, AW105148, AW083012, AI669659, BF515266, AW514659, BF516057, AA126445, BE465947, AU152940, AI927938, BF031562, AA310489, AW410334, AW182807, BE546476, BE465917, BE763696, AA767314, AI420205, N21466, BG260989, AA054496, AA938728, AI493810, AW771502, AI743602, AW675411, AI090291, AI283114, D81907, AI417561, AA427677, N66098, AA186486,

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HMSNQ62	960	879610	1 - 1972	15 - 1986	AU130906, BF984210, BE382776, BE892933, BE298391, AU128590, AU128196, BF683462, BE141049, BF683880, BF737298, AV736866, R67288, BF349181, BE266956, AV688174, AV688316, H16663, BF237634, AA336926, BE151863, BE890366, BE710492, AA261822, AW750617, BF723601, AK001606, AK022935, AF161534, AC009542, AC009330, and AX048089.
HGBHG78	961	879611	1 - 569	15 - 583	AI092570, BF898230, BE929207, A1120738, BE719334, AB018310, and AL096766.
HTLHJ08	962	879620	1 - 1189	15 - 1203	BF195557, A1041014, AA993615, BF446877, AA349276, AW297315, and AL033528.
HSID148	963	879670	1 - 1369	15 - 1383	BE873436, A1951815, A1956094, A1745450, A1813886, A1557659, AW579065, BE870274, BE871298, BE769601, AW393065, AA533783, A1721101, AA468365, AW962442, A1560195, AW469133, A1858987, A1572115, A1565097, A1858299, A1318311, AW603383, AW749137, A1625125, BF335352, A1932443, H25030, A1990965, AA635976, AA533344, A1535829, R24141, AW193143, AW166653, AA366876, AA807845, AW816475, AA564865, BE873591, AA557883, AW816483, AW962441, BF334908, AA526856, A1678368, AW571499, AA630850, AW062682, AV703785, AV758870, AV760014, A1469384, A1249473, A1047429, A1889426, A1292275, AA584484, AA744018, AA862312, AW961593, AW265385, AV760389, AW873417, BE139358, A1499954, BE139267, AV761107, A1745335, N57681, AW175834, AW383952, AA366716, AW467536, BF111583, AW963895, A1254779, A1821987, A1732869, AA904275, AW020088, BF229305, A1733856, A1431434, BF974756,

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HRDDU37	964	879672	1 - 597	15 - 611	BG036897, AW957881, AW957802, BE410387, AA307675, R56811, R13877, H08036, AW672820, BE010067, R13211, AW975808, BF806624, R47783, R34521, Z45992, AW170381, AA373859, N99509, W32806, BF511393, BF063359, AI057135, AW377577, AW450256, AA806429, AI022332, AI375097, and AC002094.
HFLU119	965	879691	1 - 2669	15 - 2683	D51542, D51590, D51528, AI526129, D51545, T68805, D51502, AI526116, AA084690, D59510, T23769, D49849, Y08856, Y08854, Y08855, D38559, and I21645.
HTWAG66	966	879698	1 - 789	15 - 803	AC002302.
HLCLE14	967	879732	1 - 670	15 - 684	BE622267, AU117894, BE410502, BF314711, AA458526, BE732552, AW959248, AA039656, BF868459, BE047767, BF088649, BG011758, AA323012, BF962639, BF868526, AA428017, BF313531, AA410862, AA477912, AA743844, BF338073, AA402828, AA456448, AA085205, BF962646, BE888300, BF689989, AA488266, H25605, W17309, BG113257, AA295025, H20931, BF875061, H20915, R53510, R48651, AU127096, W44351, AW753496, BE312316, BF435836, BE727881, AW370887, AA477929, AL137744, and AK001629.
HOFMH52	968	879744	1 - 1589	15 - 1603	AL532301, BE713203, AW969106, BE713202, BE713383, BE713392, BE713204, BE713207, BF513617, BE713388, AI633708, AL120116, AA504739, AA496783, BE716086, N59542, AU150004, AI338475, N34798, AI056613, AI276758, AA702001, AI805424, AI440355, AA687291, AA504642, W68512, AI253078, AI613458, AI470918, AA255945, AA775538, BF593458, AW028316, AI225061, AA402439, R63782, AI699684, W68397, AW518244, AA514521, AI284252, AA398405, H87911, H90408, AW884968, N52882, R63731, R95763, AI701842, H90461, R91611, AV687266, AU159658, AA721323, R95809, H87365, N22120, AI383211, R91562, N44520, AI219180, BE713394, BE713208, BE713389, BE713201, AK025448, AK022815, and AK023972.
HWAHE17	969	879774	1 - 670	15 - 684	AA424092, AV754795, AL134778, and AC020717.
HWAE32	970	879900	1 - 761	15 - 775	
HSLHB42	971	879927	1 - 1385	15 - 1399	D62420, and D79551.
HDSAC28	972	879957	1 - 423	15 - 437	AW138498, AA322737, AI184847, and AC005841.
HFIHT27	973	879972	1 - 1920	15 - 1934	AU131281, AU128692, AA601062, AL041074, BE897245, AW993476, BF671678, BF095221, AW369650, AW992992, AA020744, W24707, AA374738, AA192207, BF095641, BE270359, AB018347, and AK022945.
HBIMS61	974	879980	1 - 1271	15 - 1285	AI741157, BE326969, BF514595, AI733570, AI867214, AI825826, AI792171, AI435439,

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HCD4H28	975	880010	1 - 1431	15 - 1445	BF432206, AA843898, BF064282, AI051065, AI075210, AI741816, AA888796, AI453831, AI761457, H87971, and AW004862.
HSDFD90	976	880039	1 - 1680	15 - 1694	AA398927, AI969361, AA781910, AA426067, AA812822, AI365155, AA402066, AW880037, BG180468, AI35426, AI348777, BF895953, AI919345, AW088899, AI434833, BF527014, BE393551, AA830821, AI869367, AI932638, BE879516, BF909758, AW411235, BF968910, AI801605, AI288285, AW263823, BE061389, AL120853, AI886123, BE963035, AW103628, BE875407, AI805688, AI308032, AV755459, AI344785, AV757598, BE897632, AI250663, AI874166, BE965355, BE964497, AI567582, BF339322, BE621256, AI952920, AI812015, AW079159, AW087938, BF885675, BF970449, AA427700, BE928768, AI620089, BF915208, AW403717, BF814541, AI952862, AI612759, BE968711, BF904180, BF970768, AI963062, AI280661, AW827150, AW105429, AV746964, AW193125, AI932949, F27788, BE964767, AI433976, BE907440, AV655250, AI686552, AI572418, BE964614, AA853213, BF525539, AI471361, AI922901, D50977, BG249582, AW168485, BG256090, AI791396, BG113299, AI950664, AW238730, BF038804, AI537677, AI538342, AW999049, AI583054, AI345746, AI610645, AV729259, AI445992, AW162189, AW117746, AI554218, AI866002, BF914091, AW079572, BF970990, BG107847, AW088134, AI873644, BG026428, AI933589, BF817402, AI680457, AW149925, AA420758, AI867042, BF816455, AI566630, AI432040, AI623682, AI537617, BG120816, BF817926, BE879612, BE047952, AI434741, AI689420, BF815196, AI251830, BE963918, AW858243, BE544111, AV729189, AI366549, AI334445, AI636719, AI921379, AI568138, AI569328, AA279293, N80094, BG260037, AW238688, AI499986, AW083804, AV714391, AW410969, AL119791, AI608676, AW083573, BG255895, BF344652, AW827103, AI249962, BF036115, BF793245, AI339435, AI537261, AI872914, AW088903, AI498579, BG122918, AV710199, AV757528, AI886181, BF673434, AI619716, BF035653, BG030364, AW151136, BF818009, AW151729, AA493647, AI539771, AI446373, AW073898, AI611743, BF885085, AI478123, AI251205, BG026746, AI572892, BE966699, AI758512, AI805638, AI275640, AI493559, AW169653, AW152469, AL041772, N74355, AI073952, AI863321, AW150225, AV682011, BF904258, AV728833, AL110306, BF204484, AA480074, AL049085, AI888944, AW089258, BF853807, BF344031, BE966365, AV659536, BF816785, BF304748, AI929108, AL039086, AI445990, AI364788, AW059837, AI280732, AI494201, AI802542, BF341210, AI669459, AI799650, BG032919, AI811912,
HTLJK34	977	880137	1 - 768	15 - 782	

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HNGKC65	978	880142	1 - 1657	15 - 1671	AL520380, AW964307, AI161343, AW967203, AW954939, AI221950, AL041826, AU137320, AI271350, AI205879, AI080159, AA868067, BG111970, AA931374, AA213383, AA449162, AW961428, AU157129, AA452364, W84487, AA025228, AI743040, T08347, AA970366, W20339, Z39489, F02802, W84564, N92722, T08346, AA207021, F06532, AA025991, AA213601, R42398, AA328933, F06533, BE972558, AI861833, F08486, R14674, R37459, C02421, F04701, N92721, BF062378, AI190488, BG032378, AI808607, BE702258, AA452138, D80443, H51515, AI183981, AC004142, AL442092, D49802, AF291437, and AK001991.
HHENP77	979	880178	1 - 3099	15 - 3113	AL528340, AU132836, AU132782, AU129989, BF568276, BF568338, BF313050, BF315873, BF206196, BG035754, BF312233, BE168071, AU118387, BE909834, BF843422, BE313362, AW815024, BF925267, BE312550, BE148833, BF980572, BF309260, BF926526, BE312229, BF314730, BG014610, BF926531, AU140227, BF926537, W59997, W52743, BF568513, BE262505, AW502586, BE888221, BF436609, AW503001, Z25334, AI338720, BG007998, BE784119, BE259593, BE274273, BE729190, BE274361, AA355740, AI434817, BF923138, BF689646, BF987045, BE906440, BE005446, BF858507, AA371718, BG010932, BF798229, BF857878, AW752841, BE084570, AW819777, AB040932, AK023046, AK023272, AK000664, AF234600, and AK024398.
HDPBD83	980	880199	1 - 1706	15 - 1720	BF811204, AA161299, AI825905, AW129576, AU144143, AW843904, AI354376, AW081897, and AK021483.
HHEVU86	981	880221	1 - 795	15 - 809	AL522577, AW955220, BF792769, AW955046, AI686590, BG056551, AA324542, BE463650, AA974290, AI624287, BG056614, AI123639, AW964439, BE350481, AL133678, AA908233, AV690320, R87196, AA864252, AA972260, T33896, AA323557, AV691137, BG152404, AA602774, BF448858, AA324658, BE719066, AA323457, R87697, R87277, AI803367, AI916277, M78932, AA363949, Z42954, AA322750, R87197, AA325248, AW869776, R87698, BF875027, BF229930, BE856340, AL522578, T30908, BF229938, AA318791, H51781, AA339760, F02433, BF881193, BE703262, AW793759, BF738498, and AB018269.
HAPSG46	983	880278	1 - 1718	15 - 1732	BF940114, AI361316, BG223420, and AA876320.
HTEDK31	984	880341	1 - 1594	15 - 1608	BF979988, AA075159, AA478784, AA478903, BE467492, AA843188, AA826045, AA075158, AA053855, AA707527, AI198687, AW117252, AI802939, AI081321, AW514188, AA826044, AW665176, AA280224, AA703951, AA729909, BF770936, AA832280, AW821213, BG149919, AA806497, AI082669, AA281465, BF594189, BE938724, BE927899, BE844153, T80850, H56516, BF854811, BE747478, C01469, AW609559, AA015820, AA082154, BF310655, AW263826, BE964636, AI349933,
HCWFW0 7	985	880358	1 - 1104	15 - 1118	

					AL515047, AW078689, AI584118, BE011880, AI696340, AI343059, AL514421, BE963082, BF698359, AW104129, AW082997, AW026123, AI203903, AV721967, AI686823, AI538881, AI521128, BF681103, AI047344, AI560545, BF572734, AW021373, AI514935, AI138386, AI696611, AV682272, AA848053, AB031050, AC005319, AF226324, AL049423, AI121952, AL078630, I48978, AX019230, AF029728, AC006203, AF177767, Z82206, I48979, AC004987, AC006112, AF109906, AK026057, AL157878, AX019229, AC069550, AP001343, AC009501, AL161628, AI353625, AL109919, AL080156, and AP001746.
HUFCR29	986	880363	1 - 1799	15 - 1813	BE617082, AV709406, AL532888, AI628756, AV727790, AI336856, BF001659, AA477891, AI761628, AI439145, AA526478, AI797579, AI371098, AI138451, AI742223, AI687691, AW339261, BE304821, AI795955, AI380752, AI913710, AA502361, AW300001, BF063682, AA526500, AW502070, AA477779, AI368254, AV725114, AI280863, AI473786, AI420161, AA300057, AI241125, BF939216, AA630100, AA578712, AW007083, AI971336, BF222682, AI351111, AW959589, AV708470, AI910797, AA948481, AI927041, BF063079, BF850084, AA533624, AA494512, BE069241, AI380536, AA300056, AW935725, AI340713, AI859586, AI311773, AI269781, BE774325, AI311238, AW935740, AA283189, AI880262, AI311614, T75352, AI910336, AW081083, AI250581, BE069286, BE961980, BE838969, and AW629916.
HINTCN90	987	880370	1 - 623	15 - 637	AA332576, AI432007, and AF272897.
HCMSE07	988	880378	1 - 1191	15 - 1205	BF698153, BE897376, BF032925, AV698491, AV704128, AI681115, AI672348, BF446644, AW956353, AW173697, AI565451, AI079990, AW305215, AA115462, BE220951, AA148788, AW081450, AW020072, AI094153, AI088661, AI051834, AI469307, AA031780, N44611, AI610893, AW130820, AA115214, AI970462, AA233114, AI620951, N34679, AA115204, AA987696, N69772, AA495921, AA495922, BG035943, AI079994, AW236674, AI434100, AI039432, BE551078, AI770044, AA961227, AA150297, AA115067, AI873440, AA938897, AW959113, BF969641, AI301357, AW959111, AV694096, BF594815, AA603790, AA243692, AA910225, AW935153, AW834971, AV750339, AA031879, AA377521, AV728255, AI913596, AW834903, AI702644, AA961701, AW452143, AW611695, AV747546, AI352693, BE168076, AI381836, AI767254, AW605628, AI247300, BE163839, BE163829, AI050072, BF248126, BE163847, BE163920, BE163850, AA573940, BE163744, BF351192, AI830541, BF855942, BE163751, BF351198, AA081742, AI493755, BF696480, AI865675, BE163895, AW939553, BE163849, BE163741, BF348392, BE163759, AA937056, AI266405, AW138034, AI648373, AA653705, AW602492, R37287, AW576838, Z41281, BF819817, BG170888, AI090946, AV747400, BE073811, AW103627, AA326653, F08269, AI572322, T49708, N84377, AA364595, BG114719, D25919, BG261120, N85358, T49709, T49717, AA094410, BF103921, AA385800,

HWMV6 1	989	880405	1 - 1841	15 - 1855	AV648266, AV648262, AV648234, AV648217, AV648346, AV648548, AV648541, AV648424, AV648503, AL355685, AP001717, AP000045, AP000113, and AP000300.
					BG259815, BE892851, BE539936, AW854093, BG119701, BE141333, AW629819, AL823398, BF330636, W27116, AV747223, AL581128, AL119465, AA897785, AW004741, AW613378, AL808377, AV746630, AV733232, W28405, AL280964, AW006936, AL872266, BF351925, R60290, BF856733, AW137140, AV655167, AA383051, AL167420, AA215764, BE708553, AL362366, AL184026, R28463, BF325707, BE000615, R26454, W07404, BE843896, AL701315, BF820955, AL513693, AL513865, AK025708, AX005900, and AB041801.
HDPWT82 HBGOU17	990	880431	1 - 1021	15 - 1035	AL800779, AL13885, AA329926, AW976286, and AK026720.
	991	880444	1 - 2090	15 - 2104	BE867496, BE541350, BE896556, AL809134, AL027632, N74407, N74353, AL363139, T87904, BE327405, AL560940, AW963834, AL016234, AA375952, W02620, N94712, AL797295, BF382054, BF672265, BF843748, R10903, BE931815, T87997, N63499, T06423, R10955, AA903337, D78701, AL206491, BF928321, AL083569, BF812773, BF383030, AW963833, H64853, W03115, AV707885, BF380711, AL905040, AW368196, and AL121747.
HHAMV7 8	992	880520	1 - 632	15 - 646	AL858626, AL601129, AW172770, BF975361, BE784748, AA682471, AL766986, AL991157, AA526574, AL186151, AW043630, AA873539, AL362945, AA872582, BE251892, AL216109, AL352221, AL300440, AL277646, AL200585, AL609596, N22521, AL097123, AA480240, AW955089, AA576140, AA635177, AL200035, AL160742, AW025601, T18886, BG150232, AA984955, AL918868, AA506923, AA827292, AA715425, AL197929, AL023066, AV751709, H95218, AA057620, AL298371, AL242564, AW592200, W24658, R16278, AL192319, AA955617, AL263519, AA027293, AA988287, BF844937, AA86585, T34012, F20966, AW799456, AW799484, AA503038, AW205928, AL080188, AL287554, AL698957, AA553360, D31547, R19131, AL971526, AA768130, AA745675, AA515419, AA723369, AA297339, AL571753, AA525455, H95219, BE858654, F36398, AL193352, F26599, AW273731, AA089510, AA027292, AA047785, BF926440, BE770178, D20944, AA652711, C15697, D81584, AL449243, Z82192, and AL021878.
HMAALN60 HETBT53	993	880542	1 - 579	15 - 593	
	994	880575	1 - 2162	15 - 2176	AL119315, BE729577, AL143374, BE173408, BE410936, BE272249, BE275591, BE898306, BE613511, BG118257, BG105587, BE408273, BE279104, BF125749, BF027322, BE612708, BE385744, W72350, BE837421, AW471105, AW290878, AW572889, BF060903, N77334, BE391538, AW402293, BE778462, AL808711, AL145692, BF055066, AA424884, AL284353, AA307200, AA424722, AL284350, AW394131, AW612713, AA158631, BF929694, AW135464, AL19454, AW959029, AA448799, W26121, AA158431, BE645276, C15360, AW394164, BF725977, H11532,

					<p>AI910731, AI358798, AI690444, AA085836, N55329, BF918053, BE350477, AI033750, AW802453, AA448800, AA878920, AW802532, AA855084, AI140248, AW028739, D60112, AV654736, AW381139, AA158358, W74000, R88885, BE867706, R23929, AA919005, AA353638, AA361069, AA778471, AA062591, T31980, BE149191, AA34730, AA994324, F05188, T31909, Z42692, AI942336, AV734435, AA346683, T16421, AA353639, AI468504, R23930, AA844001, Z38852, BF738196, AA062824, BE833269, AI284352, AW385054, AW993838, F01438, BE826063, BE826100, AA703537, N83584, BF972650, AW385576, R45864, AV694567, N28801, AA248966, AA131843, AA131147, AA318296, AW964393, BF515522, D45730, BE311968, AW795329, AK021809, AF191340, AL137586, AF076607, AY007104, and AA861002.</p>
HRAEC49	995	880595	1 - 1525	15 - 1539	<p>AL520674, AL534182, AL514046, BG116788, BG110085, BF968470, BF979090, AU119095, BE563103, BE390369, BE264950, AW250259, AV693651, AW631130, AL520673, AA232119, BF800738, BE833908, W32462, AU126582, AI261382, AA333799, AW965382, BE833903, AV736006, W19825, BE077977, AI584111, AV687848, AW295553, Z45474, AW172648, AI579900, AI659248, AV690738, AV736678, AI761236, AI479549, AW207336, AA770013, AW043561, BF448094, T93805, AW873018, AA719366, AI765459, AI138222, AI138467, AW249494, AI739593, AI283702, AI824823, AW236706, AW193724, AA825670, W73805, AA804605, BE550316, AI969218, AA926663, AV683097, AA506158, R52016, AW771327, AW514885, AI580499, N35232, N23225, AW167821, N23136, AI685971, AI634397, AI383358, AU145795, AW630343, BF196000, AI985305, AI989436, AW089781, AI453655, T86131, AI813645, AU150687, F04205, AW272518, AU145519, BF941168, AI830373, AA725891, D20759, H29305, AU149704, AI090687, Z41171, AA879402, AA137242, AA232535, AW971038, AA757311, AW137222, R49626, AA084633, R34752, AA225197, AV741046, BE041306, BE672682, AW771855, AI702894, F03532, AV704496, BF316302, BF360963, AW078861, AA492346, AV691780, BE934278, AW002571, AI687548, AA136462, BE541691, BE260496, AA090641, BG150319, AW301178, AI399678, T86232, BE260866, N28753, AA885410, N28806, R88612, AA496176, R08969, T93856, U78723, AF132947, AL133020, AK021758, AL009179, AF151035, and AK001354.</p>
HNHBD03	996	880637	1 - 1819	15 - 1833	<p>AL524088, AL110452, AW294123, AA280081, BF589432, AW149570, AW055009, AI949814, AW130349, AI142520, AI982810, AA047100, BE855561, AW157022, AA281323, AA101644, AA938948, AA279077, AW629474, AA592999, AA485084, AA101643, AA631312, AA775640, AA047237, AI183353, AA759272, AI374883, AW892064, AW073343, AA485196, AI081003, AA491277, AI370489, AI243704, AW613930, AW613943, AA757371, AI824149, AA897566, AI362091, AI243938, AA883065, AW749657, AB047883, and AK026237.</p>

HTTCB17	997	880657	1 - 2867	15 - 2881	<p>AU132215, AL525679, AL515177, BG113333, BE869021, AI499419, AU139159, AI820049, BG121796, AW070938, BG259160, AL042008, AA984061, BE537415, BF026831, BE537527, BE388898, AA781142, AL042032, AL041636, AW972110, AL043672, BE542868, AW873327, BG058572, BE566338, AA521150, BE466680, AI090248, AU153792, AW183150, AA533251, AW969193, BE464613, AU157904, AW090185, AA236580, BF194931, AI986141, AA234444, AL515178, T64870, AI039274, BF213699, AW779867, AA761405, AA688276, AA285153, H58691, AI025833, AI283608, AA454934, AI223971, AA421748, AI025468, R58865, AA740862, AA836810, BE093352, AU149876, AA911678, T40471, AA157675, H23351, AF012373, N53133, AW895501, AV748343, AI698072, T67438, AI912060, AI220192, AA284019, T99670, AA829259, AL043673, AA224471, T39198, AA215781, H23240, BE775139, AA056347, AI698363, T99070, AL046440, BF814152, T69471, AL046465, BE869567, AI968320, AA652360, BF094036, BF960615, BF960069, AW265609, AA626470, AA428563, X84692, AF226864, AK002169, AK024285, AC007172, AY008299, U07155, and AK024960.</p>
HE9QG38	998	880670	1 - 2046	15 - 2060	<p>BE271581, AW955764, BE619409, BE866984, BG253057, AW968761, BE886116, BF344964, AW976410, BF345023, BE780277, BE785395, BF754944, AA488906, BE890845, BF512399, AW360767, AI768670, AI277757, AW044308, AW295995, AW292871, AI277756, BE675386, AV746640, AW274000, AI763411, AI438941, BF240692, BE180746, AI291098, AW004641, AI075028, BE463592, AI640134, BE676146, BF971220, AA833791, R82926, AI333095, AA928138, AA768096, BG031738, AA703549, AA878923, AA724426, AA330063, AA210688, AA213455, N26246, W44749, AA973149, N36347, H18543, BF998023, AW022223, AW779804, AA743465, AI473421, BE259189, H09231, T62124, H79886, AA334229, AI928653, BE183666, BE178263, AA827829, BE780093, BE178165, T10351, R25082, BF743854, AA234633, R17075, BE156874, AI364687, BE697397, AA234809, R33461, BF674513, AA211659, AA148773, AA989016, R09836, Z46059, R57316, N78794, T98890, Z20035, AA152343, AI547312, BE220795, BF513485, BF509638, AK024669, AF130049, and A74914.</p>
HTTJY18	999	880697	1 - 4325	15 - 4339	<p>AL525571, AL533731, BF976303, BF685788, BF685652, BF973133, BF058850, BF976400, BF976323, BG150099, BE892777, BG029184, BF237667, AV656017, BF691730, AI557497, AI766034, BG024889, BF971749, BF972796, AW962881, AI346436, BE674341, BE467218, AI693265, BF309470, BE675023, BF058658, BF111235, AI738725, AW119055, AI160450, AI017930, AI797257, AI991629, AI798116, W68181, BF591010, AA625367, AA490784, BF572914, AA044667, W67722, BF057254, BF573414, BF736112, BF130493, AI671520, BF110929, BE856087, AW500111, AA504141, AA631316, AA767225, AI806219, AW408108, BE349301, AW444920.</p>



					AW500524, AL134814, AA504403, BF213546, BG258521, AI751104, AW516077, BF115723, BF061379, AI128490, BF109772, AW118565, AI692421, AW500252, AA478628, AA574142, AW404045, BF513045, BF513217, N34063, AA865477, AW500009, BF445329, AA724644, AW504625, BE973593, AI338294, AA772221, AI367881, N25707, AA261859, AW503394, AA459048, AI970650, AL135604, BE972776, AI262143, BE565664, AA488873, AI927358, BF571351, AI807827, AA831431, AI375320, AA156896, AA614686, AA705068, AI689872, N20622, AI681820, AW001622, AW614979, BF215153, AI984819, AW630591, AI014617, AW504068, AA480905, AA261860, AI867384, AA435533, AI784526, AI160087, AW504099, AA166738, BE971273, D82419, N34090, AI696079, AW504962, BE348697, AI285773, AA748764, AI262134, W19430, AW501253, AW962657, AA551244, AA830573, AA594011, BF109089, AW418919, AA922932, AW028030, AA521187, AI039256, AA236003, AW604948, AW277237, N92776, AA765180, AI970640, N29890, N42538, AA732578, AI734932, N20047, AA906348, AA458859, AW406898, AA809901, AA602108, AI224063, N36867, AI708167, R01227, AA256635, AA641971, AW504187, N57554, AI766701, N25677, W28360, AA476626, AV689648, BF805957, AA928247, AW139747, AW500246, AW014251, AA490590, AW500481, AI751105, AA341059, N34097, AI086671, H43996, AA811989, AA256528, W19342, AA312978, AI033145, AA807336, AW611790, AW968921, AW117721, AI334709, W25524, AW119206, R81082, AA737427, BE245138, BF799306, AI813973, AW962652, AW005026, BE243789, AW405044, AA488853, AA074480, AI383401, AI292298, AA832284, AW571417, H42547, AW407878, W19267, AA704947, AI263119, W81357, R78198, AA167018, AA811362, AI285699, H43433, H84090, AA810744, AI377900, AA676862, AA018129, AW502893, R80972, AI806914, AA491236, AA725290, AI537298, AW953968, H84091, H02400, AA491229, AW802024, AI921449, AA975459, AI766614, AA533859, BE169533, AA766645, BF810125, AW449400, AW275577, BE076263, R82713, AR083259, AL121833, AF151834, AF151039, AI245898, U93243, AF161502, AI245899, AL138717, AL139804, R01340, R23498, R28019, R28134, R34375, R34495, R47909, R48013, R77825, R80959, H22250, H27095, H42546, H43997, R84879, N29202, N45609, N74950, W23568, W79656, AA018130, AA044802, AA074479, AA151369, AA150043, AA152125, AA156816, AA210800, AA211896, AA256716, AA480968, AA488925, AA488952, AA622355, AA714856, AA721265, AA736770, AA746101, AA805302, AA808364, AA810117, AA918628, D79301, C01426, N87578, C18400, AA091907, AA094806, AA648868, AA449155, AA889990, D20178, Z39797, Z43736, D45501, AI146569, AI339392, AI222553, AI383763, AI651562, AI219994, AI220842, and AI337517.
HPSND10	1000	880733	I - 1638	15 - 1652	BE793894, AI807759, AW450916, BF514313, AA043271, AA743402, AW275098,

HDABX58	1001	880753	1 - 2031	15 - 2045	<p>BF063672, W03512, N67515, AI910822, AI914953, AI095495, R49704, AA857790, AW511159, BE252860, R40481, AI394479, AA827387, H21772, AA043270, R88601, BE794741, AA378050, AA953772, R13050, AW197695, BE265969, BF972450, AA323849, AW118231, R19093, T16265, H21771, C01211, BF971537, BG030873, BF941824, AI797365, and BE266351.</p> <p>AL535214, AL040644, BE018704, AL040643, AL515259, BF984005, BG180466, AW246320, AI650302, AL042804, AI605559, BF983767, AI927626, BF223633, AI298438, AW770569, AI568388, BF062444, BE671125, AW300584, BE328819, BE465163, BG174693, AA984239, AI554609, BF195768, BE467686, BE674277, AW005800, BE046386, BF448183, AI563968, BE551069, AI797053, BE503133, AI564013, AW770770, AA894913, AA621570, BF528350, AI126557, BG007394, AW612787, AI803219, AI972673, BF195970, AW014098, AI962504, AI357569, BF064166, N25930, BF435240, H97941, AI343941, BE302273, AI725817, AW242349, AW242665, AI795978, N70583, AI536786, N29462, AW603681, AI357419, AA468485, AA467890, AI620137, AW779786, AA102261, AI040293, AA974172, AI537410, BE315558, AI565749, R37635, BF038852, R59318, AI088418, AA099791, AW958851, AW003157, W45584, AW236035, BE463765, AA670164, T51561, N35536, AA040930, R59317, AA993669, N35574, AA040929, AA467832, W45547, AI609030, AI824739, AA173919, AW088169, R35817, AW138432, AW237627, N41486, AA865263, N42494, T48178, R13777, BF358807, BF981084, AA344737, AI630737, AI688876, AV656732, AA357540, AI632149, AA211260, BF196978, AI741060, BE326367, AW582605, W04884, AA470359, AA299579, N26485, N56162, BF732830, AL515260, AV688569, AA464150, N39275, AI241922, T25989, AI042803, BF002859, AK000391, AF095136, AK000475, AF095150, AF095147, AF095149, AF095142, AF095143, AF095148, AF095146, AF095145, and AF095144.</p> <p>AA464839, BE269516, AW470830, AI218646, BG115487, AW504536, BE739191, AI808512, BE907567, BF381742, AW044532, W20358, AA780196, BE894120, BF031803, AA450310, BE767266, AA243525, BF248139, AI358214, AC018646, and AC008154.</p>
HE9PB45	1002	880774	1 - 1225	15 - 1239	<p>BE274416, BE796471, BE732851, BE274942, BE744582, BF569175, BE742701, BE256762, BE742144, BE795254, BF568869, BE790574, BE563305, BF568576, BE746156, BE740481, BG033090, AI278617, BF568882, AV708596, BE408128, BF314731, BE792080, BE616046, BE800001, BE262693, BF684849, BE277245, BF733530, AI609398, AW949616, BF205911, BF027522, BE727806, BF731898, BE901877, BE410318, BE798504, BF027691, BG032952, BE734282, BF206192, BF033471, BE789134, BE730490, AV722377, BF795868, BE408030, BE791118, BE254394, BE793766, AI081552, BE798773, AA621655, BE382422, BG115131,</p>
HELM94	1003	880807	1 - 1998	15 - 2012	

BE734933, BE787688, BE513948, BE260840, BF206576, BE409751, BE898660, BG116758, BE407486, BE407852, BE740227, AA868455, BE280149, BE798617, BE868285, BE409448, BE390161, BE278593, BF343357, BF316152, BE727621, BE262523, BE514065, BG023982, AI290739, BE390639, AI608719, BE279396, BG032717, BE868201, BE281278, BE277366, BF204947, BE895652, BE729775, BE389707, BF309530, BE409640, AV708019, BF027260, BE744602, BF310580, BG248409, BE902109, BE278363, AV704825, BF183004, BF315672, BF570336, BE514893, BE410441, BF312894, BE410258, BE390801, BF569828, BE385999, BE276586, BG248175, BE390307, BE965112, BF182904, AV662028, BF311017, AW574771, BE410454, BF972701, BF182972, BE390006, BG250350, BF314117, BF316043, BE389680, BF314905, BE267406, BE296936, BE300696, AW575188, AA421224, BE731194, AA421214, BE906764, BF686051, BF317239, BF683145, BG251234, BF125886, BE387592, BE858260, AW009516, BE393065, BF026896, BF055246, AW193527, BF310514, BF125089, AV749488, AA868840, AW001133, BE546186, BE265502, AI376946, AI735188, AW247558, BE254798, BE304800, AW615534, BF314091, AI022091, BF689296, AI754809, AI567964, AA993670, AI143752, AI743002, AW009876, BF237748, BE276886, BF972312, AA911941, BE267492, AA888156, AA602889, AI277633, BE378913, AI689150, N40529, AW248397, BF688487, AI241348, BE514652, AA843194, AA873585, AA947889, BF313180, AA425965, AI090471, BE272030, AI273254, AA989498, AA550844, BE747789, AA579086, AW615600, AI300301, AA488241, AI284299, AI190110, AA449842, BF149324, BE740734, AA612762, AW250093, BE409261, AI026923, AA421945, BF106098, AA622170, AA468742, BG118322, AA830858, AA993166, AA078825, BE281522, BF974406, AI018058, AI564786, AW250846, BE256506, AA421946, AA410582, AA429053, AA683333, AA402945, BE785757, AI301856, R69521, AI525649, AA847314, BE742981, AA468762, AI080736, AA429082, AA460139, AV688855, AA476292, AW949617, AW403534, AI268605, AA602504, AA581663, AA443534, BF316956, AA830904, AA610770, L38995, X84694, L38996, S75463, Y11796, Y11797, T70058, T74871, T83115, R20760, R45183, H14233, H23087, H23088, H30244, H30633, R84553, R87220, R87285, R87446, H49168, H87247, H87295, H96271, N31446, N63003, N98909, W00489, W19804, W94599, W95828, N90006, AA053001, AA076631, AA078793, AA099847, AA155589, AA258525, AA460736, AA463916, AA280940, AA468553, AA587426, AA662376, AA665325, AA837812, AA857088, AA857872, AA864547, AA983218, AA988319, N53896, N79911, N85692, W05255, AA093258, AA654151, AA216765, AA248261, AA405877, AA449898, AA449965, AA455853, AA405186, AA778048, AA844795, AA773338, AI005580, Z28833, D20373, Z41560, F02045, F05797, F08593, F11498, F00281, F09159, AA693504,				
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					AI244591, AI269128, AI343791, AI350362, AI351795, AI417506, AI471315, AI423684, AI160438, and AI654419.
HJBC09	1004	880809	1 - 1786	15 - 1800	AL530941, AL531095, AL532415, BE740897, AI741203, AL530940, BE888539, BG035156, AW014759, AU123486, AU155101, AI460064, AA602593, BF195480, BF110787, AA809772, AA151826, AI017084, AA05715, AA524253, AI685330, AI367986, AA935116, AI887031, AA912942, AA429257, AI372506, AI372507, AW873642, AI075826, AA349736, AA151825, AU133950, R70283, AA149523, AA693777, AI824613, AA233638, R48373, R48272, AI193215, BE736887, AI873222, AW967330, AA532784, AA954462, AA150514, AW016701, BF240820, AA349735, BE563863, BG149943, BF574008, AI961072, BE162572, AA235641, AW002935, AA410864, AA150106, AA356291, AI422472, AI572700, AA428698, BF872868, AW103184, AA878262, R70244, AI565706, AA904449, AA262321, AA338177, BE158302, AW938717, BE158297, AW844464, AK023331, AK001177, AX046392, and AL445248.
HTXJF02	1005	880913	1 - 681	15 - 695	BE393228, BE898028, BF308677, BE895273, AL537185, BF343304, BF795730, AL525354, AU132795, BE273858, BE875008, BE907136, BG034828, BE748432, BG177442, BF130044, BF207179, BF033227, BF030142, BE868645, AA130946, AW967752, AI751840, BF247381, BF569346, R51237, BE386334, R88507, AW963553, BF968741, BE391437, R97750, AA482657, BE786444, AW402179, AW072085, BG033780, BF752903, H56555, C18458, W03395, AA126401, AI076498, H93026, BE162511, BE175287, BE162512, BF766840, BE093107, BE909504, AW602285, BF766841, BG008756, AA535341, BF685918, AA380705, AL139289, AF151846, AK001653, and AF170907.
HKAEN78	1006	880927	1 - 908	15 - 922	BE887597, BE397131, BE408292, BE622330, BE703000, BF971531, BE269849, BE391475, BE302668, BF131069, AA306924, AW958831, BF978756, BE304348, T73855, T83294, BE622791, BG105604, BG014569, T85637, BE741562, BG031185, BE967252, and BG014560.
HKADD76	1007	880936	1 - 1557	15 - 1571	AI08603, BE140256, AW872982, BF832764, AW352295, AI767967, AA863266, AW085774, AW238519, AW117932, AW606064, AI310728, BF105292, BF350121, BF825661, AA865790, AW772195, BE889218, AA864183, BF354847, AI141812, BF832729, AI355569, BF832728, BF354850, BF350182, BF354844, AA595971, BF354848, BF354846, BE350405, BF825662, BF353627, AW080463, BF353788, U75833, BF736474, BE141732, BE141331, AF081497, AF193809, AX041041, AF284446, AF185277, AF193810, AF219986, AF219985, AF219984, and AF219983.
HKTYF62	1008	880972	1 - 2208	15 - 2222	AV725121, AV707643, BF339141, BG056129, AI075977, BG151555, AW950770, AA916771, AW138790, AW590751, AW813050, AA470153, BF513899, AW959548, AI458304, BF432120, AI052501, AW769287, AI968023, BF338740, AI380155, N63052,

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HBXAT65	1009	881010	1 - 2036	15 - 2050	<p>BF344176, BF338634, AW952341, BF116046, AW294647, AI333224, AI970896, AI565702, AW954899, AW026640, AI363429, AI366047, AI970764, AA019613, BF056618, W77990, AU153722, AI369416, AA96293, AA886797, AA019631, BF449019, W73946, H05223, AA324354, Z44709, T75039, AA258603, F06074, R21310, T30647, AA258549, F07165, AI868234, BF726014, AA364404, F05199, N93994, H16436, AI864418, N54874, AW769672, Z38996, N53983, AI002454, AI568140, F01451, F10318, AU132117, AW898421, AW898423, AK024282, AL049594, AL157413, and AL034426.</p>
HDQDF65	1010	881146	1 - 3203	15 - 3217	<p>BF684575, BG248639, AA876064, BF346246, BE542721, AL134841, AW300940, AI475557, BE258580, AW967698, AA743018, BE266406, AI148542, BF985174, AI096921, AA877859, AW247131, AI760839, AI769927, AW469955, AI741057, BF345270, H05902, AW189409, AA292621, AI571984, AA662809, AI420935, AA258253, AI342139, F11800, AA614834, AA454726, AA609413, AA259099, BG007234, H17910, AA523889, BF062616, AI362897, AA419061, AA626687, AA164881, AA251790, AA333503, T10179, AW082517, AA586817, R39900, T07261, AI401331, R44745, AW193941, R56170, AW167262, R02386, R56058, R46137, AA419088, AI311641, AW188616, R13605, R91338, BE173817, AA857438, Z43437, F11017, AA454777, BG057202, R43375, AI424655, R24570, BE882759, AW189013, R21035, BE855859, AA912008, T10178, AA321087, AI075726, AW883652, AI880042, AW964576, T65601, F11321, AA883716, F08982, R11265, AW362253, BE884357, AA341528, BF509882, BE392328, AW855506, AI472816, AW572607, AW362295, AW269705, AW275138, AW051812, AW956424, AA376431, BE828158, AB002307, AF143946, and AK025382.</p>
HRAAA79	1011	881197	1 - 546	15 - 560	<p>AA463356, AW939129, BF513406, BE869503, AA453500, H24259, BF028435, AW997262, R19782, BE833726, and AB023227.</p>
HEOQC11	1012	881219	1 - 2772	15 - 2786	<p>BE379483, BG253105, BF036364, BG117921, BE872989, BG122284, BE908158,</p>

					BG029103, BE393512, AI924972, BG025424, AW886543, BE903765, AW963659, BF869521, BE676310, BG252510, BE613638, AW601911, BF026258, AI046288, BF816050, AW601984, BF815873, AW886554, BE273287, BF206524, BE858034, AW189048, W89124, AU154847, AW750155, BF924333, AI091620, BE789523, AU150426, AA492579, AA588728, BE874322, BF807649, AI439428, AA449355, BF807659, AA634228, BF307499, AI146362, BE743794, AA043859, BF087409, AA581516, AA507328, AI469226, BF818901, BE937846, AA146720, BF198086, BF739072, AI056656, AA765659, NG4539, AI046287, AW402025, AA312475, BE342739, BE843305, AI457992, BF766510, BF878234, AW005493, AA292416, AA449614, BF926645, AU128111, AA742592, AA465004, BF510887, AA405756, BF873953, BG014341, BF935056, AA078819, BE174657, AA613822, N64732, BG014370, AW603239, AV750762, AA405775, AA196964, AA367635, AA373433, W88918, BF876476, AA504065, AA652295, BG014324, BF878225, N91745, T79620, AA996002, F25128, AI364464, BF931158, AW977542, BF998898, AA515314, AA394253, AA078918, AI909748, BF993832, AA455284, N80334, BF878226, AI044772, AA377702, AA742682, BE614350, BF875029, AW593565, BE549394, AI583136, BE512844, AI907986, AI909746, BE938357, BF819427, BE168048, AA146721, T79705, AI798856, AW177744, BE140559, BF880020, AA037697, H55648, AA767252, AA810554, AA814521, BF899598, BF758045, AI675619, BF758316, BF871918, BE254219, BE928634, BF757567, BF819757, BF815545, AI872260, BF876853, BF934770, AW370721, R32993, D78805, D78848, AW078800, AW082532, AW020164, AI245304, AI688854, AK025241, AK022886, AI096741, AC004882, AC005529, and Z82171.
HUKTA08	1013	881310	1 - 2024	15 - 2038	AL521538, AU125521, BF793744, BG258951, AU129772, BG256358, AW134800, BE796240, BE253092, BE539282, BF822222, BE676509, AI884675, AI356274, AU159541, AI922366, BE676139, BF154835, AA522887, AI983195, AI652380, AA614362, AW193792, AI093421, AA236204, BE939312, AW474923, BE675234, AA131740, AL045292, BF478117, AU149161, AA781085, BE674720, AI417244, AW514745, AI093127, AA131671, AI276637, BE252897, AW590126, AI289900, W28544, AA775698, AW205128, AW513803, BE257415, BF589820, AA559118, AW571703, AI570252, W56287, AW379958, AW379963, BF746091, AW150930, AI873877, AI873584, AI813283, BE939111, AA256931, AW379959, W20295, W01952, BF592912, AW630205, AI367701, BF813651, BF940400, BF350176, AI689423, AW510386, AW615008, BF955736, AI813544, AA808752, AI638124, N23992, AW803181, AW379950, R61350, AW664515, BE166559, AW118104, H95563, R98051, R98291, AW379953, Z44598, BF883900, N31893, AI032934, BF590870, AA255440, AI191311, AW080110, AW135533, BF350175, BE815693, N74127, H75780, BF806805,

						AA765360, AW207573, Z40471, BF376312, A1784599, AA775773, AA193577, AI933593, H75919, F27380, N36713, AA356015, AI191092, N90675, BE815761, H70361, T98923, T98966, BF900264, C17503, BF892700, BF739337, BF847746, AA236205, BF129814, H70360, BF829897, BF903297, BF901728, AW365688, BF377679, AB023221, AK024505, AK022684, and AL117517.
HFPAD41	1014	881359	1 - 435	15 - 449		BE258362, AA628882, BE870683, AA323413, AK025981, and AC024075.
HPJCS44	1015	881430	1 - 681	15 - 695		AW410782, BF792459, AW955940, AV726411, BF432662, BE857492, AI972565, AI056672, AA778523, AA037311, BF978843, W60863, BE542390, AI187168, AI245984, W60939, W37918, AI188420, AA074597, AI268441, BE314839, AA993519, AI183543, AA843776, AW084631, N29524, AA702338, AA039291, AA972616, AA781128, BE879181, AW083425, AI142041, AI936728, AI093442, BF755258, AV709792, AI140965, AI283866, AI016054, AI022728, BF727374, AV708660, AA191566, H20768, AI474142, AV725455, BF977645, AA732825, AI022724, AI201817, AI597728, AI880711, W74479, AI214595, H46202, AI274386, AA099106, AA082527, F24267, W32025, W37876, H41388, AA399271, AA748616, F37025, AI492615, AA169592, AA570212, W93530, AI004909, AA039346, AV713180, AA931071, AI936327, AA412242, AI039454, AI937220, AA393576, AA631596, AA191042, W21111, AA171620, AA471092, F20455, H46201, BF804561, AA099662, AW024785, AA397522, F26118, H40042, AI079167, AI744316, BE168709, H22583, AW969986, AI089850, AA336564, AA039531, AA074588, R11464, W35280, AW083344, H39640, AW572614, AI364041, AI870076, N92905, AA336799, H93751, W31483, R06172, H40066, AA375644, AA075264, R24250, W23700, D59290, AI369962, AA878296, AA814448, AW189383, R06070, AA972872, W32815, AA687569, AA903674, H30376, AA039530, AA094633, AA336940, BG231432, BG055617, BG150940, AL534991, AI879443, R19365, AL080092, AX013073, AC021016, AL008629, AB033010, and Z56173.
HTAIV82	1016	881434	1 - 567	15 - 581		BF359265, and AC018644.
HACBW10	1017	881438	1 - 2139	15 - 2153		BE740110, BE614199, BG036606, BF794271, BE613968, BF339038, BF342453, BF032766, AU136216, BG179790, BF968635, BE387671, AL038560, BF663954, BE885970, BE904104, AL135459, AI436201, AW953307, H06465, BE383320, AU158350, AI571292, AI554757, AA833753, BG254361, AI096785, AW007492, BF434626, AW089504, AI564422, BF058524, BF435000, AI089681, AA617824, AI885122, BF440008, AW964852, AI362817, BE855624, AI356360, AI221373, H10224, AI073914, AA166886, AW366102, H05556, BE888184, AA676650, AI934653, AW296155, AA872203, H10972, H10973, AI492601, AI125539, AI799298, AI498933, AI061152, T15503, AA458601, AA872209, AU156575, R61036, T17436, T33613, AA569366, N28604, AI498749, AI872252, AA279193, M85530, AI916485, Z39785, T17456, AW005804, AL135454, AA452779, AA279199, Z43723, Z44967, AA011623,

					<p>F03929, AA864353, R15053, AA737685, F06742, AW207302, AA016231, AA452597, F03006, H05094, BG024484, BF091804, AL041610, Z41569, T30470, T33612, AA971792, R60917, W22888, AA634464, H22893, T85832, Z44975, AI364739, AI86876, R6361, AA593613, Z42662, AI468715, T90946, T03431, F03936, Z38824, HI0280, AW292730, AA531008, BF091800, AI630936, AA011624, AW021870, T31134, AI042719, T16989, AA026059, BF248005, AW837834, AA22189, AV696791, AV701983, AW949795, AV703593, AW955686, AV703222, AV648263, AV652027, AV708723, AV729263, AV726520, AV690768, AV652617, AI557254, AV726619, AV684075, AV703159, AV708622, AV726058, AV708961, AV696106, AW951263, AV689111, AV728157, AV692345, AW953872, AV708893, AV686083, AV659536, AV706219, AW959837, AV707541, AW952422, AV704637, AW952409, AV726624, AV709604, AW954113, AV708004, AV704955, AV652156, AV701707, AV728360, AV727799, AV705693, AV726784, AV708704, AV702427, AW959800, AW953515, AV702932, AV654030, AW952400, AV725617, AV697498, AV728270, AV709256, AV727807, AV726951, AV658332, AV703456, AV728455, AV725991, AV650283, AV650591, AV650691, AV725745, AV683994, AV650768, AV696866, AV687946, AV706279, AV728436, AW952183, AW954384, AV704042, AV697288, AW953787, AW960326, AW959910, AV709407, AW955012, AW959991, AW956384, AV656903, AV661704, AV697196, AV709587, AV659389, AV655280, AV659294, AV727787, AV686060, AV686064, AV660608, AV659322, AV726156, AV654908, AV698545, AV656478, AV683272, AW951618, AV708834, AV709314, AV708381, D87452, AF217994, Y11505, S68736, A91160, AX047063, A84916, and Y08991.</p>
HUFBN79	1018	881443	1 - 841	15 - 855	<p>AW973329, AW009523, AI889430, AW962430, AI738681, AA777585, BE937139, AI148315, AA316389, H46384, N59780, AW074190, AI040187, AW961240, AW955741, AA55061, N38810, AW205276, AW591603, AW262608, H28204, AA877684, AW272559, BF331766, H48174, AW130846, BF880021, AA326799, C02557, AW004767, BF333513, BE073479, R01004, BF379202, AW001128, BE164371, AW748729, N45441, AI668923, AA366208, BF840169, T99197, AK000409, and AF119884.</p>
HCFCN07	1019	881450	1 - 1193	15 - 1207	<p>AI528558, BE563118, BE618260, BF062004, AI948496, AW956772, BE873416, BF337652, BG119576, AI632017, AW337120, AW514979, AI769937, AW576956, AW073564, BE501678, AA716674, AW151678, AI675915, AW440597, AW439081, AA635630, BF339544, AI021957, T89118, AA922428, W79669, AV711994, AI146673, AI150788, AA480505, AA227693, AA227676, AW731897, AA531425, AV741311, BF331855, AA262822, W01192, AI393050, N32689, AW958904, AW954092, AI750137, N81110, AA632822, AA962088, AA912464, AW576950, BE771047, AA449555, AA527708, BG035620, AW582590, AA641605, BE464403, BF838128, AW610549, AI203728, H43962, BG057162, T89207, AA384355, F09351, BF830478, N42656,</p>



					AA53461, H43963, AA304927, AL530046, AA653574, AA469257, F11691, AA384281, AI825709, AA236953, BE771051, T59024, W74169, BF574249, AA156909, N31860, BG120180, W69603, AW615667, AW996173, AI672113, AI475081, N48371, R06017, BF837097, BF681192, W92848, T59099, AI270106, AA815439, AW291193, BE089692, AA831220, AI217844, AA781532, AI268834, AI023965, AA953550, W24031, AI240967, AW605655, AI806236, AW873478, AI619512, AW779424, W24259, AW772375, AI001999, AI827606, AI677730, W31758, W78992, N40651, AW954182, AF132733, AL049944, AF129927, AC036103, and T98083.
HLWDZ66	1020	881490	1 - 880	15 - 894	BE869339, BE874350, AV649008, AA446693, AW992782, AA449142, ZA5275, AU132020, BF241714, AV648920, H06908, AL138309, AA173638, AV648696, BF690788, AW607264, BF959303, AU132889, AB011100, and AC053513.
HEONP58	1021	881498	1 - 611	15 - 625	AI573144, BF310612, AI289200, AL523370, BF206642, BE263288, BE260193, AI244184, AA806849, BF436307, AI193797, BE397874, BF058254, BF330701, AW820218, AW609612, BE386938, BF312852, AW068762, BF967177, BG179208, BE612391, AW379978, BE792210, BE260100, M63005, M63480, and M63544.
HMAGN1 9	1022	881531	1 - 1888	15 - 1902	
HFCAP42	1023	881569	1 - 1603	15 - 1617	BF337564, BE383862, BG109450, BE620636, BF026125, AW602452, AW602460, AW602469, AW577721, AW602456, AW602495, AW577725, AW577724, AW577730, BE073803, AW577723, AI935269, BF978294, BE387764, AW393741, AI554727, BF954781, BE391357, BE387938, BE073809, BE408267, AW577936, AI934780, AA532444, BE073814, BG163219, AW752866, BF942048, AA007355, AW577937, BF331556, BF691827, BE302779, BF834807, AW614020, AW577929, BG117998, AW393760, AI865671, AA328834, AW750184, BE073812, AW083480, AW750507, AA576539, AW577938, BE073815, BG104388, AA069307, N28611, AW593736, BF942387, BE207564, AA975612, AA007354, BF989784, AW470660, BE391682, AW292203, AA677613, F17262, AW602467, BF942263, BF221918, BE408642, AA369174, BE563781, BF811624, AA339038, AA974293, AI829240, AI361968, BE277321, BF432131, BE857481, BE729534, AI424193, AW337629, AI829535, AA065030, AW953866, AW957069, AW953861, BG118833, R29160, AW581406, AW577713, BF726777, AW608494, BG260813, BE409442, BE620402, AF151100, AX017292, and AF151099.
HWBBT49	1024	881570	1 - 1482	15 - 1496	BE154994, BG117690, R98131, BG164212, U46357, AA625233, AA625502, AA312886, BF803350, AB037784, AC007919, and AC007051.
HDPBT62	1025	881683	1 - 460	15 - 474	AA459557, BF379284, BG177419, AF215666, and AF006466.
HDTTT02	1026	881693	1 - 762	15 - 776	AW953511, AV713133, AL533549, AI151271, BF680161, BE567704, AW024992, AI870840, BF792700, AI880451, AA908906, AA772305, AI887674, AL533508,

					AA457022, BG254481, BE740398, BF965078, AA627705, BF676716, W44481, BF698765, W44482, BF593868, AI037861, AI749662, BG057258, BE858339, BF939877, BF029355, AI831432, W93586, AA662361, AA846577, N90934, AV713332, AI023963, AA886324, AI920818, AI367861, AA010986, BF678266, AI375600, AI130861, AI148376, AI142976, W96112, AA311729, AI184083, AI074487, AA441798, AV703885, AA041291, AI075462, AI305812, AI311650, AI459890, AI688197, AI200171, AI089048, AI139710, AI055873, W93991, AI277942, N33171, AA627875, AA010864, AI343838, AA292455, AA740427, AI559139, AA781322, AI300894, AI078842, AA889300, AA505305, AA860749, AI087202, BF448664, AI279172, W93959, AA708127, W96113, AI921825, AA129812, W65434, W01700, W40172, AA045763, AI186164, AW272753, AI343547, W17049, AW022066, AA057194, AI350550, AA627816, T76967, AA045762, AA133759, AV651908, AA236720, T66881, AI623106, BE464303, W65493, N98224, F20466, T66904, AV712096, R91613, T78913, T78966, AI127011, AV712997, AA363481, N44954, AA725249, AW020886, T66905, BE816929, R98885, AA355485, AA363483, R98975, T77131, AA483803, BE816942, BE787095, AA319513, BE816894, AA041324, T97680, AA133760, BE816902, AA129813, BE835833, AW975134, AA805825, AA047510, AV729389, AV725012, BE835784, T97681, AA437236, BE835786, AI222618, AW769199, AW008998, AI536726, BF034502, T24035, AA456863, N51310, AA047453, R91564, AA057128, AW581643, AI039763, AW581629, AA916261, AA382562, AA321463, AA593209, AI557611, AI091782, AW581628, N64447, AA442301, W93484, AI367439, D19913, W93914, AK026030, AF107495, AF201944, AX013699, and AF191020.
HWHS59	1027	881714	1 - 710	15 - 724	AL520479, BF969872, AL529639, AL528965, BE733103, BF315512, BE896377, BF347695, BG179113, BF340204, BF913055, BF726952, BE247601, AA078212, AI081542, BE303038, BE276637, AK024482, and AC012351.
HJPCP29	1028	881766	1 - 2217	15 - 2231	AL525037, BF981660, BF038648, BF342088, BF685192, BG248652, BE798260, BE904021, BE869370, BE786013, AW246414, BE871597, AW246657, AI819396, AI684664, AW474451, BE790337, BE502853, AI224933, BF316425, AA857894, BF590803, BE551214, BF515606, BF431266, AI017549, BE671006, BE300752, AA411548, AA401323, AI769337, AI017976, AW161307, AW190690, AA603749, AA460776, W78041, AI354360, AI498969, AA460347, H06972, T09106, N57956, BG118868, AA642968, AA024573, AA729823, C15623, D60461, N94972, AA758511, AV704595, BE383359, AA024574, AI927462, AA403032, AW117427, BF828303, AI198324, AA972802, AA888960, R15775, D20809, AA603748, D80699, AW963491, T34850, BF155054, AI923958, R16281, BF155087, AF136581, BF155058, D60460, BF155086, BF941705, R60043, AA758533, D80479, H06971, W23881, R60105, R56605, T12595, BG113055, AW950223, AV728874, AV694674, AV703687, AW959848,

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HHEBM09	1029	881890	1 - 2019	15 - 2033	BE550121, BE550881, AW978299, AA456815, AI016711, HI7272, AA973867, AA807104, AW070411, AI801578, AA871995, AI214534, AI827031, AA620701, AW591994, AA578764, H09747, AA234676, BF662989, AW892114, AA235336, HI7273, AW135819, HI0879, R60963, AA813434, R41826, T83087, AA365780, R88233, W23270, HI0837, T81134, T81086, R61630, T90551, R88232, BF944317, HI2924, N73837, W00880, AA321783, AW382527, Z99714, and AL161993.
HDPIV17	1030	881907	1 - 805	15 - 819	AW500126, BE247767, AW505168, AW504620, BF898211, BF359759, BF848858, AW937962, AW505005, AW505007, Z65636, and Z55271.
HBGNO49	1031	881968	1 - 551	15 - 565	AA194366, AW168461, AW168460, AA582260, AI270766, AI609321, H03116, AI014657, AA155614, BE241450, BF718676, AA078843, N28719, AA102492, BF983729, AA052893, AA101020, Z25175, BG113833, H25463, AW406211, AA292172, BF663546, T84848, BE271158, W07816, AA985274, R50289, BE241528, AA296841, AA424970, AA308772, AA516434, BE273260, BE301829, AA400177, BE251580, AI868512.

					H23671, H18375, BE907113, AW006790, BF436337, BE515265, A1912806, H52831, A1653221, A1917471, A1302252, AW402617, BE797999, AW006365, H44855, AA400151, BF061050, A1703178, A1745340, BF732881, BE218473, AW006355, BF058239, AA194451, A1458007, BF222427, BF447926, A1684363, A1814411, A1160522, H40656, AA593294, A1288978, A179636, A1378783, AA101019, and A1144056.
HWAFQ40	1032	882003	1 - 548	15 - 562	AA292293, A1417145, A1052002, A1399688, BF940742, A1804652, BF434698, BE674681, A1692887, BF126043, BF435114, A1692862, BE563793, AW976577, A1797237, AW024378, A1218747, A1682382, AW969124, A1660374, A1421955, BE563604, BF727404, A1052043, BF002326, A1078829, A1081925, AW303349, A1079891, A1201317, AA280612, A1911322, A1014708, A1424419, A1379672, A1220001, A1243680, AW149840, BE792270, A1239775, BF438082, AW340701, AA825606, A1949421, AW172372, AA287874, AA767433, BF940637, AA811865, A1494495, BF940305, A1399870, AA830452, A1815486, BE314632, AA236913, A1568914, BF310470, BE262681, W37474, A1193910, BE562193, A1084588, BF206322, AA743828, A1669558, AA815099, AA258200, AA825748, W44803, AA807434, A1672892, AA832087, AA732158, A1767075, AA721077, AA808663, A732159, A1084287, AA905024, AA461042, AA461089, A1200625, A1220239, BE268270, AA830827, A1816426, A1805926, AA806183, AA491166, AA485351, AA282224, AW188602, AA430366, AA741439, AA282216, AA836088, AA811760, AA905197, A1611305, AA743766, H97411, AA743765, AA808040, AA197166, and BE274116.
HTLGZ03	1033	882014	1 - 2631	15 - 2645	AL529222, A1654857, A1651405, A1660075, A1431898, A1921808, A1672616, AA947309, AW575034, A1624730, A1631881, A1624728, BF983806, BF594215, A1570936, W07754, A1460327, BE798665, A1025529, AA620869, C17310, C16874, R46681, H26800, A1491709, AA806378, A1623325, H45081, A1917017, BF895967, BF091262, T40637, A1350516, AW236839, AA310232, AA768926, AL529223, BG009720, BE646092, BF594777, BE621379, AW176705, BF795359, AA650038, BG012781, N24032, A1201217, AW197267, R46682, AW016207, BF851617, N80693, A1631550, A1992313, BG150450, N35426, BF375280, F35365, H14527, BE829348, AW372130, BG005101, AA948504, BF747812, A1825439, BF511851, AA720646, BF741419, BF848728, BG009905, AV704306, BF759416, AA206102, BF878062, BF739332, AF053356, and AR016407.
HL YCX18	1034	882016	1 - 582	15 - 596	N28696, N23033, A1417970, A1379543, and A1288223.
HSDEK82	1035	882064	1 - 489	15 - 503	AL532638, BE514802, AV726836, BE742339, A1739570, AA298803, R16034, R16035, AV722117, H30310, Z42004, AA302987, BE735910, BE563252, BF342113, AF137386, and AL020989.
HCEMU86	1036	882164	1 - 2506	15 - 2520	AL525387, BE250477, BE266966, BE875768, BF342026, BF345633, BG028087, BE250624, BE793426, BE272606, BE265171, AW956920, BE313236, BE250545,

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HKAFF60	1037	882197	1 - 1447	15 - 1461	AL519325, BF966927, BE788945, BF984772, BG024762, BE876512, BG178394, BG171598, BG026521, BF980195, BF339692, BG115326, BE893953, BE891789, BG035486, BG035412, BG168514, BE896770, AV724674, BG169368, BG121055, AV722711, AV751805, BG030039, BE967432, BF979171, BE896854, AV762094, BE891353, BE537978, AI079871, BF245516, BE783063, AI141548, BF969158, AI754452, BE779848, AW300378, AI884994, AV706988, AL519326, BE888451, AA203251, BE504261, BE766678, AI744514, AV694667, BE546429, AI557059, AV729483, AI458068, BE910521, AW242918, BG116928, BF196900, BE870029, BE081688, AV727905, AW055218, AI802141, AW593406, W67445, AW779043, AW602202, AI951522, AW964276, BE562307, BE392757, AW957266, BF815064, BF033763, AA526064, BF817011, AI160333, BE218383, BE895407, AW237570, AW274411, BF732811, AA609534, BE908193, AI459327, BF698223, AI283096, BE856881, AI222806, AI148933, AA083482, AI147909, AW300715, AI568762, AI090774, AA563763, AI278463, AW514410, AV751302, BF382334, AI879602, BE890646, AI032613, AI066533, AI143315, AI753784, BE857576, BE081677, AA847652, BF541738, AW340856, BF316031, AW026015, AI879218, BF825668, BF212884, W56491, BF69268, BE866663, BE855684, BF439164, AA535049, AA456761, AI554135, AA001460, AW264821, BE047202, BG163285, N36124, AA130194, W68068, AI128476, AI218481, AA156535, AA633881, AA156569, AI362255, AA563834, AI090230, AA232691, AA614829, AI912414, AA999950, AI278461,

HEORN16	1038	882261	1 - 1757	15 - 1771	<p>AA236246, AA748893, AW467634, AA987579, BE677393, AA609317, BF197400, AA256331, AA622767, AI147627, AA731493, AI685353, AW954278, AI093377, AA157320, BF674740, AI040518, BE904735, AI311550, AA596041, AI082018, AW052191, BF979469, AW874397, AA815009, N32430, N56677, AI245736, AI359187, AI122567, BE180520, BE894572, H96869, AA046050, AW952060, AA280753, AA877307, AI754116, AV735252, AA770514, BF109543, AA693752, BF678077, AI887632, AA047587, H93552, H98954, AA236339, AA083574, AW105058, BF056125, AA281434, AA158987, AA121255, AA804823, AA157333, AA632214, AI142221, BE217893, AI680944, BE710405, AA972914, AA305518, AA532588, AW069436, BG025753, BE122767, AW129237, AA713687, BE789597, AW592472, AA256330, AA157676, AV744128, AA047594, AI800254, AA953274, AA954453, AA676854, AI241256, AA550951, Z43884, AV656364, AW607503, AA157741, AW451463, W95430, BE165775, AI277442, BE184253, W81659, BF571961, AV736231, AV725339, AA130285, AW662674, H72445, AI929786, AW841742, BF678793, BF089370, AI005435, AI521966, BE246260, AW241255, AA865873, BE122786, BE439486, R56248, AL121890, AL357536, AF161392, AC007560, A74739, T92731, T92810, T91375, R09451, R10274, R10275, T84521, R21700, R36856, R46592, R46592, R56331, R70113, R70112, H58107, H71164, H72355, H82688, H83976, H89109, H89215, H90191, H90850, H99697, N30340, N44130, N56853, W81218, W95557, AA016061, AA027264, AA027265, AA046176, AA129783, AA129782, AA157429, AA165075, AA164678, AA193350, AA193351, AA523464, AA856752, AA903595, AA976559, AA158593, D11578, AA653231, AA676575, Z20319, AA759202, AA782763, AA885309, AA926897, AI014878, Z25308, Z28850, Z28851, Z39950, Z42292, Z44158, D31440, F01817, F02717, F03164, F06429, F06897, F00328, AI363823, AI202276, AI140910, AI184034, and AI284372.</p> <p>AL529136, AL519036, AL519037, AL522565, AL529135, AL530266, BF528553, BE745103, BF971144, BE745909, AW328641, AL523650, BF796812, AL525532, BF982724, BE889377, BE514827, BF036473, AW241827, BE378558, BE207101, BE675053, AI888192, AI990765, AA469984, AA469998, AW583031, AI660851, AA412213, AW615511, AW269957, BF589410, AA829396, BE673372, AW873087, BF589512, AW590539, AA834131, AW004730, AI204640, AA233023, AI339908, AW183546, AI434667, BE300850, AA884392, AW769309, AW138531, AA377194, AA555187, AL523649, AW138564, AA232705, AI698753, AW584027, AI950847, AA340084, R09010, BE151689, AI864316, AA523007, R05695, BE122646, BE122728, BG252040, BE967104, BG164371, BG257535, AI620284, AI434223, AL515035, AI281773, BF812961, AI591311, AW166970, AI621209, AI499512, AL045500, AI564719, BF812938, AV709517, AI702406, AI538716, AI802542, AW026882,</p>
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AL440239, AW071349, AI275175, AW238730, AI433157, BE965121, BF882343, AI433976, BF795712, BE963035, BF971016, BG109270, AI567360, BG109131, BG252929, AW104724, BE172767, BF527014, AI539771, BG031815, AI271786, AI612913, AI500659, BF816811, BF812438, BG179993, BF812933, BE048071, AL514701, BF792469, BE048163, BG032208, BE876033, AI348897, BG180996, AW999049, AL515375, BE887488, AL513947, BE904178, AW302965, AL515089, BE047952, BF038131, AL514627, AW302988, AI684265, AW148320, AI800433, AI343112, AI590128, AI619502, AW268253, BG036520, AI349598, BG058398, BE884130, AI345735, AL515191, BG163618, AW087445, BF724691, AI281779, AI625079, AL513699, AI857296, AI572787, AI631107, BF344652, AI635461, BG110517, AI800453, AI340582, AI499463, AI521012, AI500077, BG168696, AW071417, AL514829, AI318280, BG180034, AW169653, BF725644, AI567351, AW074993, AI349645, BG260037, AL040243, AV681902, AI758437, BG036846, AW075084, AA640779, AI340519, AI597918, AI281762, BG120816, AA613907, AI334884, AI497733, AL036802, AI570884, AI696398, BE886728, AI312428, AL119748, AI682841, AI920968, AV682479, BG110684, AI349004, AL514097, AI119791, AL036146, BF526020, AL513693, AI554245, AI702433, AI224992, AI493248, AI580190, AI349614, AI868831, AW059837, BE781369, AL514867, AI633419, BE966388, AI498579, AI866002, AI636445, AL036274, AI445432, AI273142, AW075351, BE904051, AI349256, AV681586, AI312152, AW118557, AL513837, AI269696, BF343172, AL036396, BE877769, BF724198, AW103371, AI524671, AI349937, BE964812, AI439745, AW301409, AI514919, AI345224, AI280747, AK025930, AK025899, AF218014, I48979, I89947, AF090901, AL359615, AB047615, AL122121, AL133016, AK000083, AX019230, AB041801, AK026784, Y11587, AR079032, AX019229, AF106862, AL050108, AL049452, AF090943, AL122050, AL050116, I89931, AF116691, AF116631, AF090903, AL050149, AF138861, AL133606, AF090900, AL117457, AL442082, AF111847, AF113690, AF090934, AB048953, AF113013, AL133640, AL117460, AF116644, AL133075, AF078844, A08916, AF130059, AL080124, AF113694, AF116688, AL110196, AF119878, AK025339, AF116646, AF130075, AB049758, AF113691, AL049314, AL137459, AL162006, AL110221, AK026542, AR011880, AF113677, AL049938, AK026741, I48978, AF130105, AF116602, AF130082, AK026865, AF177401, AF116639, S78214, AL117435, AL050146, AL080060, AL050393, AB048964, AK026647, AJ242859, AF125949, L31396, AL442072, AF130104, A08913, L31397, AL162083, AF111851, AL359596, AF090896, AL122093, AF104032, AF113689, AL133080, AR087170, S68736, AK025084, U42766, AF119875, AF207829, AR059958, AL359601, AL049466, U91329, AF118070, AF130092, AL390167, AF113676, AL157431, AL133565, AF118064, AL137557, AX046603, AL389978, AK024538, AL137527,				
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					<p>E07361, A93016, X84990, AL117585, AK026592, AF113019, AK000445, AF146568, AL049464, AF130066, AF113699, AK025958, AK000618, AF219137, AL096744, X63574, AK026608, AF119909, AL133557, Y16645, AL359618, AK026045, AK025491, AF158248, AB019565, AK026855, AL122123, AL137550, AL110225, A65341, AK026353, AK000137, AX006092, AL117394, AF119899, AL133093, AJ238278, AK026583, AF130099, AF314091, AK027096, AK026480, AK026532, AK026452, AK000212, AK000652, E03348, AF017437, AB051158, AF225424, AK025092, AF017152, AL133560, AF116649, AL080137, A08910, AL050277, Y11254, AJ000937, AK000432, AF125948, AK026744, AF242189, AL389982, AF091084, AK026504, AL117583, AB048954, E07108, AK026534, AL050138, AL359941, AK026533, AK027113, X82434, E02349, AL353940, AL049300, AF177336, AB047904, AK025772, AB052191, AK025391, AL050024, AL137283, AL049430, AK026959, AF130077, AK024524, AL121656, AF097996, AF119871, AF130110, AK027164, AF079765, AF116682, X72889, AL049382, U00763, AX026824, AX026823, A58524, A58523, I33392, AK026927, AK000323, AK000647, X70685, AK027204, AK000614, AK025967, AB050510, A08909, M30514, AF175983, AL122098, I03321, AB034701, AL137271, AK026947, AF183393, AB049892, AK026086, Z82022, AK025414, A08912, AF116610, AL137538, AB052200, AL137521, AL137463, AL122110, and AA412253.</p>
HKGBJ74	1039	882285	1 - 1505	15 - 1519	<p>AI048463, AA418644, AI949922, AI768115, AA284110, AA772347, AA845494, AA418546, AI275388, AW152307, AI378219, AI034454, W46849, AI242477, AA132260, AA844126, AI278292, AI123511, BF765757, BF762049, AI042424, BF432166, and BE814583.</p>
HOSPA48	1040	882296	1 - 1434	15 - 1448	
HWHQN1 6	1041	882307	1 - 1868	15 - 1882	<p>BE903053, BF974033, BE737271, BF725307, AI660289, AW170480, BE385904, BE72320, BE880578, BE389504, BE612935, AW025104, BE735708, N32029, BE735713, BE612487, AI554626, AW965442, AI824083, AA147069, BG121402, AI858522, AI207807, AI887529, AI888792, AA579614, AI880550, AW440599, BE620230, AW778790, AW026319, BE855617, AW274229, AW996250, AI148845, BF737363, BE045805, AI129536, BF739048, AI925547, AI887385, BG236131, BF737027, BF737029, AA740914, BE872552, BF106166, AW275948, AW770443, AV706006, AI203703, BE962001, AA132937, AI185318, AI149136, AI560703, AI744227, BE563094, AW473333, AW238844, AI278235, AA147067, N67758, N58187, BE327960, AI148573, AA862418, BF925610, AI609931, AI086963, BF683071, AA429385, AA570313, AI268499, AI459579, BG023794, AI188659, BE396045, AA085909, AA146728, AI669346, AW514379, AW589530, BF752888, BF002743, N34497, BF184179, AI267868, AI798532, N33057, AV752810, AA668732, BF881295, AA024815, BG006947, AA424525, AI983399, AW604945, BF769006, N70951.</p>



					BF989871, W48757, AA031973, AW029030, AV746980, AI610665, F19059, AI439842, AA582790, AI659024, H03542, N39756, AA653978, AA835248, AA428935, R80492, AA053392, AI538822, AI367123, BE875525, C01306, AA410888, AA024921, BE391557, BE898309, T35300, AW814684, AW843952, R76632, BF111359, AI364143, R64065, N57738, AI160933, BG057886, N29711, AA129251, AW001047, N64442, R80386, AI985350, AA586936, AI493350, R49212, AA429150, BE708764, BG006954, AA545787, F36763, F27298, R99313, AI864039, AI828569, BG007498, N42238, R66441, BG113542, H05965, AW998478, F10028, AI589434, AI678543, T63351, R89248, AA258537, AW189822, AW374958, BG013459, H50118, H56131, AA428846, BF830341, H78393, N47780, BE899624, BG260089, H20303, AA862162, AA835289, N42121, AA987839, F16923, BF182642, AI630128, AA916598, AI027539, AA485293, H03457, AA861978, AW374952, BF669533, BE743025, BE907735, BF371399, AA133081, AI247369, AA332717, T63674, AW304395, AI269017, BF917083, Z39206, AI205614, AI648477, BG054640, R98830, AW080905, AI220733, AI246902, AI364157, D29582, AI383332, AI824792, T33304, BF982797, AI381325, AI500036, BF930572, R89247, BF380586, BE183468, BE777643, BE001144, BE001205, N26313, AI906939, AV656472, AA341633, AA485292, AI002608, H48284, H64163, AA370669, AI748867, AA442663, AA424376, R59159, H93783, BE964596, AA897330, C75425, H48408, BE504326, H64115, AA530937, BE899512, AA350228, AA599559, H06014, AR062278, AC021016, AX017484, H20987, AA489657, and C75611.
HRDEP41	1042	882351	1 - 486	15 - 500	BF528001, BF109385, AA324953, BE384247, BE389133, and BE743456.
HFVJK60	1043	882352	1 - 1047	15 - 1061	BE560063, BE268305, AW607831, AW607830, BF528121, BE795653, BF931304, R49759, AC006329, AI245738, and AF124427.
HTJAC60	1044	882355	1 - 1315	15 - 1329	AL522284, AL522283, AI530766, AL516443, BE896237, BF527253, AI444603, BE905679, AW363180, AW274515, AA442374, AI928433, AI806931, AI092561, AA628013, AI184518, AW387082, AW262020, AA729980, W35309, W92109, AW340561, AI436261, AA659720, AI803297, BF155792, AI802763, AA527556, BE813043, AW593087, AI186442, R77144, H27628, AA953344, N39838, H44089, H00226, W91980, AI799506, R73264, AI831001, R54966, F24469, AI934101, Z38258, AW451099, AW956287, AI028279, R54777, AA649995, T35406, F35703, W23709, R71423, AA548429, R77145, BE094602, AI940309, and AC006330.
HMAIH15	1045	882500	1 - 1528	15 - 1542	
HTTDZ74	1046	882514	1 - 604	15 - 618	AL046705, BF805258, BF447783, BF512392, AK024416, AF055084, and AB014586.
HUSGC38	1047	882527	1 - 1768	15 - 1782	BG253939, BG104999, BF792527, BE867371, BG104768, BG105488, BE907153, BG261040, AW410417, BE890543, BF683867, BE872122, BE256163, BF816997, BF980885, AV692428, BE155885, BE872334, AV661759, BG108496, AV661774, BF309102, AI984229, BE549071, AW467342, AW304765, AW731712, AF169958,

					BE963429, BE674507, BF968596, W60791, BE877315, BF968461, BE378320, AA149624, BF512684, BE044304, AW083191, AA152005, AI751170, N50073, I99236, BF683510, BE709864, BE618385, BE538839, AW957470, BF791535, BF308959, N26359, BE618646, AA130811, AW297053, AL515743, AW780084, AI698682, N39643, BF130128, BF769181, AA350630, AV696806, BE504315, AI306722, AL515742, BG121663, AA628399, N49092, BF194821, BF839730, BG166768, AA171899, AA338104, BE536661, AA373359, H49072, AV739544, N48019, AI866098, BE875495, BE244344, AI698019, AA232381, N88038, AL514280, T60212, R17160, AW612114, BE815669, BE897480, AA446772, BE515308, AW630196, AA304803, BF793772, BF961737, AW965989, BF826581, BG033863, F06197, BE172618, BE241684, BE208739, AA625850, AI743618, AV748691, BE502704, AA181622, R14322, BE147198, BE241797, AA826581, BF351788, AV655873, AX013754, AF161470, AL137412, AJ271091, AC004139, AC007739, AL139396, and AA723906.
HLHAN77	1048	882559	1 - 658	15 - 672	AA359175, BE832983, AW303295, BG011612, and AF279144.
HFPKI70	1049	882564	1 - 792	15 - 806	BF329593, BF329589, BF329592, AW901804, AA488312, BG168163, BF245596, BF370578, AK000154, and AC005870.
HDRMD17	1050	882582	1 - 509	15 - 523	AA323772, T05374, and AF184921.
HEMDM1 6	1051	882648	1 - 748	15 - 762	BF972936, BG027591, BE729905, AW160967, AA211700, BF037732, BF037256, BE407268, BE797513, AI341467, AI279873, AW963125, BE391249, AV708486, AW161216, AA428676, AV701828, AW303833, N39835, AI815782, AI608966, AI815401, H09215, AW162570, AW161752, BE618011, BE618567, AI357796, F08612, AA053621, AW879350, BE066310, BE279619, AI309740, AI081095, AA359671, BE066572, AI866956, N26682, AA428187, AI083998, AI083946, AA431956, AA928901, H09158, AL031722, and AB041600.
HODGL52	1052	882663	1 - 1187	15 - 1201	AL525334, BF570227, AL525290, BF569253, AL519725, AA152027, AL519724, BE547726, BE899555, BG122326, BE274160, BF665062, BF978637, BG253307, BE881665, BG024050, AI858573, BE275351, BE385877, BE875567, BF037644, BE782705, BF681176, BF679407, BE048164, BG178862, AA152101, BE878922, AA872929, BF977711, T65558, BF033946, BF210760, T65625, AI935280, BF726967, AI857440, BE709569, AI806259, AA448606, AI802978, AW439396, AI088384, AI167984, AA122077, AW571878, AI079195, BE220603, AW084666, AW168968, N31228, AA612986, W58232, AA857749, W58321, F12021, AA026941, AI362267, AI741916, N26488, AI042091, AI240880, AW170483, AI368222, AI362298, AI936087, AI423537, N21293, AA699436, AI347040, AA835525, AW952600, R73924, AI308774, T93931, AA649894, AI359313, BF904576, F33942, W87299, AA857940, N25481, R86323, AA336522, W19370, AI424002, AI085418, AA318200, AW392447, W58167, AI364285, AA300524, AA777370, N35539, AI921547, AI863300, N75591, AI554631,

						AI695142, H72251, AA551499, AA512961, AW392454, AA532617, AA887904, BF917784, F09668, AI972572, W87436, AA493704, BF869008, AI582228, AA122076, AW076044, AA876794, BF000749, BF680549, and AF165187.
HSLGA24	1053	882690	1 - 759	15 - 773		BE548954, BE292730, BE545268, AA478086, BE545787, W17267, AW068025, AW801618, BE242712, BE242609, BE745101, BE745120, US2870, T35949, AA381001, AA381111, BE243322, F12018, T74373, Z45645, AW962144, AA309821, R05679, AA090647, BE545826, N78860, AA359844, AW370596, and R17501.
HMHBT84	1054	882784	1 - 934	15 - 948		AI589203, AI672363, AI631066, AI810806, AL526382, BE223017, AW516543, AL526418, BF439775, AI654696, AA700425, AW249815, AI581871, AI271343, AI127886, AW044228, AI769068, AA188637, AI240526, AI142895, AA084919, AA451876, AJ293448, AA074549, AI351007, AA482390, D20750, AA463624, AW090810, BG236022, AI143138, BF110489, AI762690, BF105136, AI752042, AI127226, AI912224, AA626231, AV736041, R56145, AL526706, AI336960, AI962785, AI690749, AA035626, BF738182, AW139485, AI762681, AA847532, AA426415, AI625813, AW856202, AI940415, BF915385, AA062842, AA599682, BF755060, AW374890, BE905270, BE464447, BF883361, BF738076, AI659071, BG109861, BG260622, AA953644, BG026484, BF343118, BG178754, BE875004, BF338495, BF338479, BF946550, BE881519, BE886648, AW025168, BG255146, BE878170, BE870547, BF528358, BG107033, BE540247, BF343613, BE881600, BG178761, BF969312, BE879306, BE910347, BF337962, AL357472, AF201694, AF308803, U35245, AL158206, and AI341435.
HHEDW60	1055	882799	1 - 771	15 - 785		BE504107, BF000553, AW629345, AW515639, AW274021, BE219751, AI808035, N53667, AA129710, BE964325, AI185668, W73671, BE744137, AW242065, AW571901, AA884894, AW612719, AI092687, AI949723, AW014984, AI808036, AA693604, W56523, AI393252, BF434501, AI340027, AW341806, BF056952, AI218938, AI022045, AW301286, AI039071, AI808859, AI949271, AI932541, AW014415, BF221606, W73623, AA489394, AA725874, W56587, AA342548, R02181, BF839205, AA733025, AW517830, AI017031, BF001499, AA279068, AA804595, AW960404, BE466157, AV721907, AA664956, T93900, N73032, BF091798, AI916642, BF970939, AA404545, H68702, AW242977, AU131256, AI766502, BF130696, AI370338, H46903, AW582396, AA089818, T12052, BF132948, AI581389, AA357318, AA328992, BF085220, BE764751, AA316087, BE706349, BE706344, H53517, H45572, W85768, H02085, N72447, BF911617, AU153833, AW364955, AW803956, AW803958, AK023161, AK076217, AK021517, AF161431, AK001540, and AK001752.
HNGNU93	1056	882805	1 - 839	15 - 853		BF197708, AI421722, AW450481, N46441, AA301550, AI908682, and AC007879.
HARMS29	1057	882813	1 - 649	15 - 663		BE886340, BG261027, BE613248, BF343091, BE612795, BE881056, BE545037,
HAMHH2	1058	882839	1 - 2048	15 - 2062		

5	<p> BE546926, AW291388, AI765134, AW007665, AI377415, AI312034, AI139126,  AW294971, AI804004, BE348593, BE549965, AI298970, BG110270, BF743165,  BF746037, AI609334, BE871297, AI453049, AW662334, AI187035, AI003382, N63646,  BF743171, AA987476, AW769867, AA617871, AA278618, AW088114, AA652435,  BG010682, BF765752, AI590008, AA688365, AI620777, BF935707, AA576793,  AA934403, AW085080, AW407039, AW204196, W31287, W05360, R71903, AI215461,  AA628850, BF746031, BF686406, T77456, R68858, T77242, AW183702, BF346834,  R68764, AA490733, R71939, AW025913, T70873, BF055186, BE003757, AI439436,  AW088952, AW956400, BE073330, AI886100, AA340298, BE073212, BE073282,  AA281918, BF090926, AA931545, BF203846, BF205373, AW879014, AW882722,  BF112178, AW394035, C02040, AA836053, BE382886, BF311601, BF743178, AI669597,  AI432644, AI623302, AI431307, AI431316, AI432653, AW081103, AI432666, AI432650,  AI431238, AI432654, BE672759, AI431321, AW968355, AI431323, BG249858,  AI431315, AI872423, AL047611, AA514684, BG028055, BF726322, BF338027,  AI432677, AL514563, BF811804, BF337604, BG028216, AI431246, BE897632,  BF726297, AI538850, BF726234, BE539580, BE782316, AI866786, BF345716, AI924051,  AL042729, AW151132, BF528721, BE875644, BG167830, AI866458, AI590043,  AI610411, AI537677, AI494201, AI500659, AI866465, AW858522, AI815232, AI801325,  AI500523, AI354981, BF034273, AI887775, AI582932, AI923989, AI284517, BE826157,  AI500706, AI445237, AI491776, AW151138, AI521560, AI889189, AI500662, AI539800,  AW172723, AI284509, AI582912, AI538885, AI440263, AI889168, AI866573, BE883591,  AI633493, AI434256, AI866469, AI805769, AI434242, BG106905, AI888661, AI500714,  AI284513, AI888118, AI859991, AI436429, AI889147, AI355779, AI623736, AI581033,  AI371228, AI285419, AI491710, AI440252, BE782626, AI860003, AI610557, AI242736,  AI828574, BE880000, AI887499, BF792586, BE018334, AI539781, AI539707, AI285439,  AI559957, AW089557, AI521571, AI469775, AL043089, AI559976, AI440236,  AL042853, AI890907, AI355126, AL042931, BE536417, BG104735, BE885490,  BF812963, AI567971, BG114012, BG252929, AW193606, AI539771, AL042488,  AI815239, AL134524, AL042655, AW151979, BE875419, AI432656, AL045163,  BE962698, AI804505, AI866691, BE893692, AX030435, Y17793, AL133049, AL133053,  AL122101, AL133076, AR015970, AB047887, AL110296, AX040958, AX040974,  U30290, AL133074, X59414, AF218026, E13998, AC002492, AL133084, X99257,  AL122049, AF132676, AF061836, AL133655, I33391, AL133070, AF119896, AX041002,  AR008521, X69711, AL049423, AL133051, AF119909, AK024978, X86693, AL133113,  AK026608, AC004213, AK027217, AK026592, AF217998, AR034821, X55761,  AL049382, AL117649, AF130077, AF180525, AR070212, S66283, AF002985, E12888,  AL122106, I30339, I30334, and AL133015. </p>

HLCLA47	1059	882849	1 - 795	15 - 809	AL536471, BE262590, AL524210, BE262591, AA452366, BE161346, BF313719, BE262802, BE906544, BF830183, BE382881, BF372488, BF358549, BF358576, BF358542, BF358541, BF358536, AA074050, BF358552, BF358565, BF358571, BF358562, BF358581, BF358556, BF358560, BF358567, BF814687, BG179981, AA351338, AA389667, BF991369, BF851049, BF851369, BF31060, BF343890, BF337072, AA164949, BE743888, BE907724, BF904506, BF847806, BE746082, BE744431, BF852128, BF358547, BF905620, and AC008753.
HDP5006	1060	882888	1 - 1946	15 - 1960	AL527984, AL530814, AL533225, AL534127, AL527985, BF568071, BF569927, BE741242, BE876190, BF568912, BG031660, BE907167, BF343904, BG110400, BG253252, BF570412, BF036442, BE905978, BF527576, BE735462, BF317158, AL530813, BE908609, AL046434, BE735670, AA482408, BG170662, BG259364, BE612777, BE737507, AA401893, AA479130, BE538613, AI823985, BF590722, BG260222, BE550007, AI473999, BF432342, BF590383, N25972, AA482554, BG179304, AA291446, AI912448, BE349567, AI811657, BE909505, BE205803, BE312468, AI859093, AI221555, AA632183, AI857796, AI553862, C03033, AI095247, AA069064, BE350830, AW780356, AA429472, AA397534, AI991164, AI263394, AA443482, AI635020, AA419228, AI288148, AA290725, AA614858, AL522526, AI187312, AW196999, BG055237, AI972962, AA722769, AI057622, R83864, H11113, R83863, BE019167, AI205076, AI087173, AV723791, AA780360, AW874620, BE262042, AA290726, BF993447, AI084314, AW192555, BF809612, R46673, AI290461, BE740805, AA435874, AI202510, AA496324, H52744, BF837618, AI299279, N36602, AI537998, AA064640, AA507080, AW303865, AA464054, AI537356, H52789, H89965, R37878, R55447, BG170292, AA496661, AV685113, AA953700, BE538683, AI870425, H11216, BE221580, AA479131, BE304579, AW970380, AW166559, N54655, AW196124, BF941300, AI309989, AW086046, N75127, AW797676, AW949122, AW896128, AW797684, AI279398, AW149889, AI474496, BE870626, AA351507, AI015541, AA503461, AW881717, R31926, BG122435, BF346499, AI384054, AI765209, BE312761, AA460274, H30444, N59000, N52041, AI475050, BE276737, BF808962, N34825, AI623375, AI401371, BF935597, BE261811, AI272144, BF931959, T79932, AI244231, AA069056, BE171521, AI991088, AA419213, N52356, C00786, AV722081, AI873140, AA807832, AA946928, AI865755, AX014144, AL117442, AL121772, and AL353812.
HFXXG51	1061	882935	1 - 1113	15 - 1127	AV702681, AV708440, AV704541, AW960830, AW952013, AV727490, AV706584, AV704853, AW952497, AV709232, AV655669, AV727101, AV706893, AW967328, R29445, AA585101, AV701467, AW951811, AW959986, AW950186, AA585476, AW956292, AW959858, AV746387, AV762343, AV709987, AV756755, AV728845, AV701803, AW958796, AV698330, AV690209, AV726887, AW952426, AV727618, AV725255, AW967329, AV725596, AW965148, AV759823, AV726590,

AV732203, AV755445, AV732299, AV732336, AV746382, AV653353, AV732362, AV950004, AV703425, AV960067, AV702298, AV726103, AV705201, AV729137, AV730216, AV725375, AV661369, AV730221, AV728965, AV730546, AV660516, AV704144, AV746424, AV703632, AV730062, AV960579, AV708520, AV954174, AV730115, AV949777, AV731078, AV732566, AV726194, AV728997, AV708872, AV709580, Z28355, AV961841, AV728530, AV726337, AV730609, AV725582, AV708786, AV704626, AV730635, AV725618, AV729424, AV949448, AV957318, AV963446, AV728743, AV725321, AV753729, AV725031, AV725441, AV705500, AV699269, AV651897, AV725577, AV743111, AV706223, AV727682, AV955629, AV761523, AV728404, AV954355, AV701005, AV727822, AV952324, AV745773, AV727139, AV699136, AV729473, AV656013, AV702947, AV662287, AV699123, Z30131, AV726830, AV721972, AV964799, AV949521, AV707633, AV739017, AV965866, AV701751, AV699203, AV730119, AV699148, AV707420, AV699153, AV724636, AV741800, AV699200, AV702781, AV962181, AV962217, AV726694, AV709356, AV955169, AV703214, AV961835, AV699250, AV702164, AV753956, AV703086, AV740765, AV701858, AV652001, AV706076, AV963948, AV699247, AV699199, AV707268, AV707401, AV699137, AV704756, AV662242, AV699223, AV699147, AV706104, AV702498, AV692714, AV728874, AV706330, AV709326, AV701783, AV706012, AV647692, AV706718, AV952301, AV709235, AV703417, AV705234, AV702673, AV707311, AV707640, AV654035, AV685955, AV704376, AV707649, AV709935, AV704757, AV709075, AV726755, AV658436, AV707654, AV708083, AV726628, AV709886, AV728901, AV759796, AV728853, AV707020, AV701704, AV702800, AV655552, AV702671, AV704879, AV707264, AV707322, AV707589, AV709786, AV729219, AV654282, AV687342, AV708069, AV949494, AV731373, AV701873, AV709880, AV702851, AV707556, AV701669, AV702625, AV705239, AV706882, AV708347, AV752043, AV702817, AV727314, AV702954, AV655067, AV656004, AV697350, AV702857, AV704954, AV705532, AV707368, AV705827, AV691615, AV701320, AV727238, AV682997, AV956304, AV703761, AV705267, AV727126, AV704059, AV702787, AV703213, AV728652, AV708809, AV709494, AV706162, AV727562, AV702783, AV727047, AX020190, AR062871, A25909, AR088705, AR038855, AJ244005, AR091393, Y16359, AX028305, AX009487, AJ244004, AX026824, AX026823, D50010, AX001322, Y09813, AR062872, AJ244003, AR062873, AR079804, AX006816, A20702, D78345, AR017907, A20700, A43189, AX001082, A43188, AX006825, AX006826, AX006822, X81969, A85395, A85476, D13509, Z32836, AX008555, AJ244007, AX021518, AR037157, AF144029, AR070327, A98420, A98423, A98432, A98436, A98417, A98427, A98767, AR038762, A93963, A93964, I63120, AX042372, I05558, I44681, X83865, AX047064, A84772, A70872,				
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HE9PQ22	1062	882969	1 - 596	15 - 610	<p>I08396, I08389, A84776, A84773, A84775, A84774, AR054109, AX006821, AR067731, I15718, AR067732, A86792, A58522, A91750, AX035462, AX047063, AR008429, AB025273, I13349, AX011024, A18053, A60212, A60209, A60210, A60211, E03627, I84553, I84554, I48927, AX043922, AR091537, I15717, AR031566, AR096545, A90655, D13316, AX009712, A35536, A35537, AX003207, A02135, A02136, A04663, A04664, A02712, I19525, AR073846, A77094, A77095, M28262, AR080470, AX027636, AR077142, A81878, AX033488, AR069650, I00682, AX033489, AX033490, A95051, I06859, AR095492, AX032992, A18050, AX012337, A23334, A75888, I70384, AX032993, AX033474, AX033486, AX033487, AJ270780, A64973, A60111, A23633, AR007512, AX006823, A11623, A11624, E00609, E13740, A11178, E01007, AX035980, A10361, AF149828, I08395, AR043601, A11245, AR054723, I03331, AX032758, A02710, E12615, AX018504, AR035193, A92133, E14304, A07700, AX027811, AX027809, A13392, A13393, I62368, AR031488, I13521, I52048, A27396, AX027813, AX030369, AX030368, AR069374, AR027100, I49890, I44531, I28266, AR069375, AX042377, AR083151, AX027812, AX027810, AR091518, AX027816, AR072535, AX042375, AX027817, AX027818, AX027814, AR085082, AR085089, AR085091, I21869, AX042373, A91965, I44516, A70040, AR069417, AR085079, E16678, I01995, A82653, AR085083, AR093385, E16636, A95117, AJ230935, AR074365, A93016, A24783, A24782, AR051957, AR095490, AR095491, I25027, A58524, AR069426, A58523, I26929, I44515, I26928, I26930, I26927, AR093392, AR038066, I08051, X55486, A22738, AJ276254, I66498, I66497, I66486, AJ276256, AX009343, AX009341, AX009337, AX009335, AX009345, AX009342, AX009344, AX009340, AX009339, AX009336, AX009338, AX009334, I60241, I60242, and AR093383.</p> <p>AV760831, A1866899, AW951720, AV762992, AA315095, A1936787, AA314872, AV761937, A1242309, BE857945, A1291913, AW119212, A1493480, AA887923, AW450015, A1015659, BF975929, BF726669, AA923699, A1274047, A1469898, D59808, BE791215, AA961195, R76121, D80319, BF476505, AA747862, D80270, D80355, D80365, AA632550, D80354, D80225, N75294, W04736, D80318, BE537034, BF589150, R76178, A1468824, AW883371, W05238, BF933450, BF360731, A1222560, AW964468, AW966330, AW975618, AW966389, AW949645, AV724520, C14331, D80164, AV699550, AW966053, AW966022, AV718489, AW966041, D59275, AW973541, C14389, AV699927, AW978634, AV720791, D80268, AW949654, AV702035, AW958993, AW978648, AV718692, AW966534, C14429, AW959799, AW949643, AW960465, D59859, AW966054, AW973307, AW949641, AA305578, AW966013, D80195, AW975621, AW966062, AV719783, AW964532, AA514188, D59467, AV719468, AV718800, AW962395, AV720464, D81030, AV718681, AW966050, AV719188, AW965158, D80227, AW949633, D59502, AW959597, AW959570,</p>
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HELEL31	1063	882980	1 - 1534	15 - 1548	BF339213, BG254227, BF529294, BE255012, AW997403, BE302712, BF530121, BF882056, BE546320, BG033361, R17741, AW748480, BE546589, H12648, AA354352, BF987039, Z42704, Z42317, BG167384, AA326060, T30958, BG121307, AA364924, AW601313, AW361978, T31239, M79043, T30448, BE709091, BG117445, F08208,



HTLGQ83	1064	882989	1 - 976	15 - 990	BE171794, T30977, A1733721, BE14092, A1732397, BE780804, BF352049, R21779, BF569711, BF346247, BG015999, BE085541, AW880261, BF569784, H42968, AW880048, AA449923, BG032268, H56003, AA077285, T19389, AL133215, and AF276997.
HETJU23	1065	883007	1 - 2213	15 - 2227	BF342863, B3892684, BE559716, BF205902, BE396822, BE887460, AV704099, BE261135, BE383346, BE90941, BF858987, BF348046, N78200, AL534700, R19749, BF213475, BE890742, BF757765, F11424, BE702524, AA297870, H93814, AW373949, AW629573, AA297097, BF973571, AA297894, BF207197, R22495, AA378520, AA489539, AA365579, AA211194, R34749, AA234650, AA298589, AW747813, AA262065, AA326119, BF346104, BF088368, H63601, AA182490, BE168058, AA287169, AL517245, BF954796, BG015890, H81156, AW964034, AA297318, BF342484, AA297075, AL534699, BE514241, BE709543, BE387719, BF821256, BE410082, AU125754, AI189424, BF034118, BF914644, AA322131, AL522845, AA234499, BF530503, R01880, BE730139, BF087593, AA228456, BF339898, BE174051, AV690581, H14466, C01139, AF099100, AL133589, and AK022719.
HNGKB25 HADAM6 7	1066 1067	883012 883039	1 - 541 1 - 771	15 - 555 15 - 785	BF338909, AU125582, AV721101, AW960032, AU149216, AI479301, AA551070, AI765789, AI888129, BF689666, AW300579, AI561067, AI952933, AA699496, BF851750, AW631269, BF223599, AA977132, AW003323, AA227895, BF056547, BF056388, BF851745, AW628961, BF851053, AI499649, AA227595, AA557146, AA005279, BF999437, AI124737, W88953, BE139597, AI866470, BF690562, AW392978, BF849227, BF999431, AA524236, AA992176, AI817652, AI933331, AA005195, BF999425, AI381813, BE221278, F36543, AW087421, AW167326, F30327, BF850865, AA953702, AI242910, AA367411, AI363751, BF834497, BE048256, BE708177, AW379838, Z42044, AI351935, F01568, BG055860, AI691123, BF772332, AI783542, AI131405, W05190, AV702728, AX040389, AX040390, AK022692, AB033104, AL133630, AX040393, and AF200815.
HDQPJ82	1068	883055	1 - 997	15 - 1011	H53110, and AF213884. AA487951, BF129128, AV723818, BF570933, AA235941, AV701066, BF917289, AA985393, BF830023, AV753264, AV721380, AA383094, AV724030, R05721, AA031936, BF934693, AV725961, W78702, W01336, BE838100, BF370954, AA322021, BE718020, BF927369, AA034077, R13275, AW517885, H91811, W56236, AB018339, AF043290, AL078582, AF281869, and AF281870. AL537185, AL525354, AU132795, BF308677, BF795730, BE875008, BE273858, BF343304, BG034828, BE895273, BE907136, BE898028, BG033780, BF569346, BF207179, BF968741, BF130044, BE393228, BF247758, AL525312, BE786444, BE748432, BE909504, BF033227, BE391437, BE386334, BE834350, BF030142, AW967752, AA130946, BG008756, AI751840, BF247381, BG108027, BE868645,

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HHFFX31	1069	883056	1 - 1316	15 - 1330	AL525312, AL525354, AU132795, BF570141, BE867619, AL537185, BF439631, BF685918, BG033780, BE909504, AA477728, BF980892, AI991269, BF684200, AA477729, AA411435, BF569346, BE748951, AI924960, AW968579, BE614788, AU154254, BF247758, BF795730, BG008756, AA126236, AW070362, H93026, N57496, N45109, BF308677, AI637534, BE834350, BE786444, AI954035, AI275222, AI678972, AI613479, AI978735, AI167930, AI811760, AI554778, AW072085, N67811, BE314914, AI538851, AI954043, BE895273, BF343304, AI948439, AI017979, AW967752, N91442, AI143731, AI346996, BE273858, AI262204, BG108027, AW471165, H63620, AI076498, AI457421, BE875008, BE898028, AI281836, R95697, AI570259, AI201683, H66998, BE907136, AA777989, AA778581, AI751841, H87670, H66997, BG034828, N40986, AI587409, C18974, AI219058, AA719048, N49294, AI358136, H65821, R95696, H65907, AW768474, R52060, H90696, BE874069, BF207179, AW193130, R48595, AA661525, BF968741, AI928588, H44607, BE386334, AA031612, AW337339, AW516411, AI564955, AW083600, H69980, AI751840, N44995, R51238, H96238, H63572, AW404737, H69525, H87168, BE833076, AI699827, R97751, H89849, BE391437, N47641, BG255865, BE393228, H70482, AI440439, R48697, AA130831, W81592, H52217, R52061, N53837, H56556, W81597, AA465706, BE162511, R81668, AI625152, BF752903, BF437083, W03395, R88507, H94311, BE868645, R81473, AA535341, R73248, BE833217, BG177442, BF130044, C18458, BG255825, BE748432, BF033227, R97750, AA635780, AW438789, AI130946, AW381075, N69411, AW602285, AA126401, AW800137, BF247381, BE093107, AW402179, AA297939, AA482657, H56555, BF090887, BF030142, AW103423, BF884172, AA031470, BF842658, R51237, BF689378, AW875455, AW997741, BF880636, AW883906, BF125484, BE925339, AW884067, AV661825, AK001653, AF151846, AL139289, AF170907, and AF104033.
HHSEF39	1070	883067	1 - 710	15 - 724	BE408172, BE733229, BF800474, BF373063, AF284422, AK024421, AC011895, AK024420, AK024494, and AK024466.
HTLHB93	1071	883085	1 - 362	15 - 376	AI828062, AI028564, AW173227, AW102657, and AL035460.

HDTJA78	1072	883094	1 - 541	15 - 555	AV718339, BF344891, AW965403, BF697298, AA022743, W07846, H46081, H46779, AA334026, N77316, A1751420, AA384525, N46299, AW378996, N35279, BE710198, N36985, A1075698, BE855987, A1741294, A1264212, A1743748, A1810383, A1885307, BG054698, BE909545, A1796828, AA503222, AA528192, AW301086, AV744392, AW152463, A1127346, AF009750, BF431950, A1357562, BF195376, BF432674, AA970897, BE841870, A1361478, and AF151078.
HNGPL75	1073	883101	1 - 505	15 - 519	BF516196, AA768044, BF935312, and AC005332.
HNTDV93	1074	883131	1 - 1044	15 - 1058	AU124766, BG028653, AU136930, BE207628, BF791639, BE262742, AA085574, AA147472, AA490803, AW503392, BE541561, A1239866, AK001269, AL354612, AL354613, and AL049745.
HNSMB73	1075	883132	1 - 1491	15 - 1505	AV688331, BE249948, AW578849, AW613096, BE715066, A1693999, BE293664, AW001377, BF000269, BE715013, BF001637, A1282982, A1660280, A1052130, AW375538, BE217952, AW188465, AW377529, A1393989, AW271401, AW449683, A1393757, BE304583, AW341061, AW445089, A1925941, AW242836, AW295567, AW302806, BE467118, AW388101, AA135001, A1222949, BF805523, BE547149, AV697181, AW389155, AV692608, AW961449, A1469663, A1886483, AA627508, AW389158, AA135080, BE539520, BF768125, BF437745, A1380498, AW009792, A1474587, AA313367, AA860541, AW176537, A343712, BF759855, A1537415, BE712167, H87671, AW135036, AW388103, AW971032, BE305221, AA470716, D12068, BF760494, D12330, AW377098, and AA503691.
HTLGL03	1076	883142	1 - 937	15 - 951	BF032559, BE747016, BG167981, BF063322, AA478705, BE002981, BF205212, AW080044, AW080140, AW080061, AW080181, AW07990, AW080114, AW080017, AW080050, AW080034, AW080224, AW080005, AW080014, AW080104, AW080134, AW07995, AW080798, AW080016, AW080111, AW080119, AW080175, AW080136, AW07996, AW080002, AW080011, AW080026, AW080110, AW080127, AW080135, AW080137, AW080177, AW080185, AW080145, AW080101, AW080083, AW080214, AW080159, AW080180, AW080188, AW080176, AW07991, AW07993, AW080007, AW080008, AW080010, AW080138, AW080192, AW080195, AW080201, AW080202, AW080056, AW080196, AW07975, AW080215, AW080239, AW07992, AW080055, AW080153, AW080208, AW080080, AW080100, AW080120, AW080074, AW080102, AW080141, AW080000, AW080070, AW080106, AW080165, AW080064, AW080066, AW080041, AW07972, AW080036, AW080062, AW080087, AW080228, AW080190, AW080260, AW080025, AW080173, AW07994, AW080029, AW080131, AW080142, AW080187, AW080035, AW080049, AW080069, AW080107, AW080109, AW080182, AW080057, AW080059, AW080028, AW080058, AW080072, AW080113, AW080112, AW07974, AW080171, AW080030, AW080184, AW080263, AW080121, AW080170, AW080093, AW080210, AW07970, AW080169, AW080019, AW080031, AW080068,

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HGBCN41	1077	883149	1 - 1200	15 - 1214	AI968291, AW015537, AW015528, AI004170, AI651507, AI656733, BG255504, AI186229, AI089468, AA618298, AW014507, AA278858, N93263, AA278426, C18509, AA297634, AW964214, AA298350, D78781, and AA297960.
HWMBU8 9	1078	883172	1 - 638	15 - 652	AW956958, AA368362, BF037395, T52098, R69052, R27072, AA397783, BE018738, AA393589, BE562464, T95399, AA912955, AW137196, AA155762, AA188555, and BF036500.
HSEBA38	1079	883175	1 - 1259	15 - 1273	BG120823, BE869307, BG033765, BE387292, BE251660, AV655974, BF037530, BF306195, BG254407, AA485950, BE905968, BE065146, AW984415, AW984417, AW984416, BE676498, BF979227, BF309616, AW984420, BF691174, BE693917, BF306475, AW984423, BF310813, AW984418, AW984438, BG252706, AA315010, BE314347, AW984422, T66123, BE869619, BF573743, BE538385, BF306361, BE905732, R61430, AW984421, W37275, BE902628, AW984413, AA451629, BF305130, H37844, AW984346, BG122978, AA309734, BE792425, BF375767, BE882111, BE298404, AI751646, AW984344, AW364601, AW984345, H75310, R81022, AA354776, R95799, AI903841, R66175, T71499, N58667, BE737387, W25203, AW090258, H19408, H66405, R87079, BF792931, BF819503, W96032, H91979, BF946450, N48499, BF030495,

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HEEAX26	1080	883176	1 - 2011	15 - 2025	BF683736, BE730782, BF792931, BF446001, BF205853, BE734189, BE796114, BG252706, BE560701, BE560444, BE562462, BE560928, BF309461, BE397034, BE560121, BF204949, BF312317, BE856236, BF797657, BE298856, BE792425, BE616370, BE616612, BF306220, BF305460, BE560047, AW978168, BG122978, AW978171, BE882111, BF203303, BE270241, BE267578, BE869619, BE312978, BF446006, N22768, AA176598, BF125825, AV690488, AV753202, BF307029, BF435055, H95262, BE737387, BE732765, BE902628, AA176958, BE676498, AI751645, AI301138, AI830086, BG120049, AW337133, BF306195, AA176601, BE390359, BG057361, BF030495, BF307951, BE348975, BE675980, BF309616, AA176961, AI264229, AW189210, BF727126, BF979483, AA779980, BF310813, BF306475, AI142549, BF941393, BE297623, BE931839, BF305130, BF306361, BF308011, BF037530, BE044637, AI524711, BG115366, AW027544, AA827128, BE869307, AI151013, AA034495, AV650977, AA604131, AW150320, AI127612, AI469431, AA709104, AW973257, AI861987, AI093350, AW090258, AI985865, T66123, AI129520, AI129524, AA779590, AA151284, AA063465, AW513431, AI312744, H99312, BE387292, H72514, BF819503, AA828465, AA026636, AA781668, N25147, AI089601, AA191371, BG235957, BF691174, AA115146, BE298404, AV749302, W94571, BE901613, AA127064, BG254407, AW075416, AA429862, BE251660, AV655974,

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HSXCV48	1081	883211	1 - 1573	15 - 1587	<p>BE563252, AV722117, AL532638, AV708191, AV726356, BG149235, AI801867, BE672806, AI870611, AA995943, AI683914, AI991347, AW471404, AI683813, AI928415, AA909585, BE742339, AW468787, AA918424, BF955426, AV726940, AI359905, AV729199, AW469186, BE514802, AI358220, AV726836, H30310, BE857931, BF114802, AI028514, R16135, R16134, AV708918, BF927098, AI991652, BF881878, AI050920, AI688299, AW516060, AA302987, AA918497, BF448837, R16034, D25700, Z38289, AV720464, AV718844, Z42004, BE702436, BE702431, AV718681, AV743601, AV722801, AV699447, AV745080, AV742667, R16035, BF092671, AV742720, AV700229, AV742001, AV737584, AV724520, AV719000, AV701118, AV701012, AV720731, BE735910, AV701017, AV723927, AV743654, AV745724, AV701248, AA302929, AV701043, AA298803, D80253, AV744934, AV701166, AV745723, AV741012, AV740535, AV718692, AV701431, AV701261, D80219, AV718858, AV701163, AV745831, D80043, AV744771, AV743008, D59275, AW973447, AV718489, D51250, AV701332, AV738934, AV746385, D80227, AV720607, AV744773,</p>



					AX008555, AR015960, V00745, AX023550, I60241, I60242, AR000007, AR015961, AX023551, A64081, AX023546, A58521, AX023553, AX023548, AX012337, I00074, AR020969, AX001323, AX001324, AR054109, AX003207, I03343, AF156296, AX006823, AF261959, AF261960, AF261966, AF261962, A58524, AF261963, AF261967, E03165, A58523, AR036903, D28584, AR072500, AR069650, A24783, A24782, AF261968, AR022240, AF156294, I66495, I66494, A11245, A02710, E12615, AX018504, I66498, I66497, I66496, AR035193, I66486, I66487, A92133, E14304, A07700, AX027811, E00523, AX027809, A13392, A13393, I19517, AR096518, A27396, AX027813, AX030369, AR038286, AX030368, A76773, E13740, AX000085, A22413, AR027100, I28266, AX042377, AX027812, AX035980, AX027810, AR091518, AX027816, AX042375, AX027817, AX027818, AX027814, AR085082, AR085089, AR085091, I21869, AX042373, I13349, A49045, AR085079, I92483, E16678, A82653, AR085083, Y17188, E16636, A35536, A35537, AR074365, A93016, A70040, AR093392, A02135, A02136, and A04663.
HTLAG19	1082	883219	1 - 1379	15 - 1393	BE904640, A1743990, A1589677, A609231, A117688, AA418209, A1973180, BE646315, AA293017, AA393552, BE502577, BF115165, A1671530, AA969969, H05646, AA868456, AA836313, A1263156, R34733, A1206863, R72891, H06920, A1638884, Z38689, AA280165, AA552211, H05647, A1424304, A1399693, BE673188, A1685889, R49606, Z42496, AA566051, A1237268, AA400796, A1468780, AA621751, D60125, A1237328, AA651719, AA280537, A1621125, AA628052, A1365113, A1590631, R73367, and A1370133.
HISBV17	1083	883238	1 - 581	15 - 595	AW374334, T08905, BF734843, A1962692, BE273962, BF734846, BE151901, BE151963, BE151966, BE151974, A1064813, BE151904, BE151912, BE151897, R94666, T09212, BE151907, A1748710, BE151868, BE151849, BE151890, BE151872, BE151889, BE151869, BE151885, BE151969, BE151854, A1748719, BE151871, BE151843, BE151873, BE151864, BE151866, BE151839, BF350425, BE151846, BE151874, BE151886, BE151905, BE151861, BE151850, BE151887, BE151870, BE151882, BE151862, BE151844, BE151841, BE151865, BE151968, BE151845, A1748711, BE151847, BE151987, BE151842, BE151883, T31706, BE151848, BE151911, BE151880, BE151851, BE151853, A1748716, BF350436, BF350431, BE151840, BE151913, BF350432, BE151979, BF350438, BE151884, BE151914, A1748723, BF350429, BE151964, BE151888, BE151902, BF335903, BE151896, BF350422, BE151977, BE151910, BF350423, BE151976, BF350424, BE151975, BE151908, BF350418, BE151852, A1741476, BE151900, BE151970, BF350430, BE151973, BE151978, BE151899, T83796, T31698, BE151881, BE620271, and A196972.
HFKN07	1084	883248	1 - 1396	15 - 1410	BG171755, BE312857, BE906224, BF974538, BE544756, BE252018, A133693,



					BE265496, BF345559, AA306051, BF059594, AL530637, BE251290, BF725987, AL527531, AA070434, BE251711, AW615140, R59555, AA463606, BE265172, T75254, R22688, BG150985, F12816, AA025180, AL044150, AA102145, AW351626, BG258647, BF305941, AI905169, AA085388, BF844011, AI631620, AL080126, AL137394, AB014583, and AK001786.
HTLID36	1085	883250	1 - 524	15 - 538	BF510785, AX027892, and AC003662.
HSLHV27	1086	883287	1 - 1000	15 - 1014	AW975618, T03269, AW966053, AW949656, AV742001, AV742667, AV701125, AV701335, AV701166, AV701043, AV701332, AV701017, AV701248, AV742048, AV701431, AV719468, AW949642, D80212, AW966531, AW978634, AW966534, D58283, AW966013, AW949655, AW966041, D80166, D80195, AW975621, AW959202, D80193, D59927, D51423, D59619, AW978661, D80210, D51799, AW949654, D80391, AW960553, D80240, D80253, AV719822, AW966054, AV718489, AV720203, AV701130, AV718692, AW966050, AV742430, AV719188, AW973307, D80043, D80227, AV701154, AW966062, AV719324, AV718440, AV719783, AV720028, AW959597, AW959628, AW965177, AW959570, AV718800, AW973470, AV720211, AV718844, AV720464, AV719557, AV718770, AV720731, AW959582, AV699447, AV722801, AV723927, AV724520, AV699550, AW949641, AV699927, D59859, AW966560, AW949631, AW949643, AW949618, D80196, D80188, D80219, AV744770, D80269, D80038, C14429, D59889, AW752082, AW949645, AV701443, D81030, AV701419, AV701149, AV718707, AW964737, AV720791, AW965158, AW949629, AW949653, AW949646, AW949633, AW949632, AW949658, AW949657, AW964488, D80366, AV720812, AV721386, D59502, AV718633, AW960465, AW975605, AV700889, D57483, AW966043, AV721784, D80022, AV723097, AV701428, D59275, AV720654, AV701415, AV701344, AW973447, AV701422, AW753053, D80045, AV701357, D59610, AW973485, AV718931, D80024, AW959799, AV699746, AW178893, D80378, AV743601, D50979, AV699682, D50995, AW177440, AV745080, AW966022, C14389, AW179328, AW978648, D80241, AW973541, D59787, AV741012, AV742720, C14014, AW964766, C75259, AV744690, AW959469, D80164, AV701224, AW964756, AV718938, AV742671, AV701021, D51060, AW973334, AI905856, AV700229, AV723247, AW956397, AW965176, AV699669, AV744773, AV744934, AV645383, AV645393, AV681528, AV681474, AV645339, AV681472, AV681507, AV681465, AV681525, AV681495, AV681505, AV681504, AV681486, AV681464, AV681487, AV681506, AV681523, AW965163, AW973482, AW958992, AW966029, AW958993, AW959136, AW959062, AW964477, AW956434, AW966065, C14331, AV719049, AV701004, AW973474, D80134, D59467, AV719913, AW965197, AV719628, AV645389, AV681531, AV681529, AV681510, AV681491, AV645344, AV681488, AW965185, AW965184, AW973488, AW965175, AW966075, AW378532,

					AW962082, AV741187, AV741198, AV741191, C15076, AV681514, AV681477, AV681512, AV681526, AW978633, AV681461, AV681497, AV681483, AW962245, AW966023, D51097, AW951169, AW178775, AW975613, AX047062, AX047064, A84916, AX020191, A67220, AX047063, D89785, A62300, A62298, AX027925, A78862, AJ132110, AX033851, AR070327, X67155, AX020190, A25909, AX035434, Y17188, D26022, D34614, AJ302649, AX021518, AR025207, D88547, X82626, AR018138, AX015396, AF260572, AJ294956, AJ287395, AX028130, AB012117, AR088705, Y12724, AR092424, AR074545, A85396, AR074141, AR066482, X68127, A44171, AX042372, AF058696, A85477, I19525, A86792, AR008278, X93549, AB028859, A94995, AR087649, AF135125, AR008443, I50126, I50132, I50128, I50133, AX035429, AX035428, AX035426, AR016514, A82595, AR066488, AR060138, A45456, A26615, AR052274, D88507, AR064240, AB037923, AR074139, A43192, A43190, AR038669, A30438, D50010, Y09669, AR060385, AR066490, I18367, AB002449, AR066487, AR074136, AR008408, AB033111, Y17187, A63261, D13509, AR060133, AR062872, A70867, AR093385, U87247, AR087528, A64136, A68321, Z32749, AR016691, AR016690, U46128, AR091537, U79457, AF123263, I14842, X93535, and AR008382.
HSLJG70	1087	883295	1 - 807	15 - 821	AV699746, D80227, AV701443, AV701422, D80193, D80240, D80210, AV719913, AV723927, D80043, D59619, D80391, D80253, AV701428, D80196, AV699927, AV718489, AV718692, AV742001, AV719783, AV718844, AV720464, AV720731, AV701125, AV701154, AV701017, AV722801, AV701043, AV724520, AV721784, AV701431, AV743601, AV742667, AV720812, AV699447, D59927, D51423, AV742720, D80219, AV744934, AV741012, AV744768, D80134, AV700889, D80949, AV699479, AV701332, AV745080, D80366, AV700229, C14014, D80045, D59275, D81026, AV701166, AV723097, AV701145, AV745831, AV701118, AV701261, AV745724, AV701163, AV745723, AV745621, C14227, AV745366, AV742671, AV745369, AV701013, AV701055, AV701012, D80038, AV699669, AV745490, AV701227, AV701344, AV737584, AV745583, AV744773, AV701151, F13647, T11051, T03269, D80168, D80195, D80022, AV719822, AV720203, AV745847, AV720211, AV701335, AV701248, AV699550, AV744771, D58283, AW959570, AV745853, AV701130, AV746385, AV701121, AV745488, AV701419, D51799, D80188, AW973447, D81030, D59889, AV745902, AV718770, AV719468, AV701021, AV719324, AV718707, AV701224, AV701415, AV701149, AV718800, D80378, AV745197, C75259, D50995, AV745392, AW949642, AV701357, AV745388, AV721386, AV699497, AV701328, D59787, AV700306, AW965158, AV746335, AW978634, AV745428, AW949632, AV720150, AV745190, AV746402, D80212, AW949641, AW949629, AW973470, AV701260, AW949633, AV746162, AW949656, AW966062, AW949653, AW949658, AA285331, AW949645, AW966053, AV701004, AV740535, AV719628, AW949643,

					<p>AV742996, AW966531, AW959628, AV743008, AV745255, AW949657, AW959582, AW975621, AV719188, AV719557, AW973307, AV718681, AW949631, AV718674, AW752082, AW949646, D80166, AV720028, D59859, AV746320, AW960553, AW966054, AV718440, AW966534, AV742048, D80269, AV745411, C14429, AV720654, AW964737, AW965177, D59502, AW949618, AV699321, AV745496, AV742430, AV701231, AW966013, D58253, AW966041, AW959202, AV681500, D80024, AV645401, AV645332, AV645383, AV645379, AV645385, AV645389, AV645369, AV645380, AV645390, AV645400, AV645392, AV645393, AV645353, AV681458, AV681531, AV681492, AV681529, AV645334, AV681510, AV681528, AV681474, AV645339, AV681491, AV681472, AV645344, AV645317, AX027925, AX020190, A67220, AR025207, A25909, D34614, AX021518, AX047062, AB012117, A85396, Y17188, AR074141, AR066482, A85477, AR088705, A86792, AX042372, I19525, X68127, AX020191, D26022, AX033851, AB037923, A62300, A62298, X67155, A44171, AX047063, AR092424, A78862, D89785, AR070327, A84916, I18371, AJ302649, A80951, AJ132110, AX047064, AJ294956, D88547, X93549, AX035434, AF260572, X82626, AR017907, AX015396, AF135125, X92518, AJ287395, AR018138, AR074545, AX028130, S69292, AR064240, AF058696, X98248, X60736, Y12724, AR008278, AR051191, AB028859, S78798, X89963, AR087649, A94995, I15997, AX035429, AX035428, AX035426, D88507, A43601, AR008443, I50126, I50132, I50128, I50133, I18367, AR066488, A82595, AB033111, Z32749, AR016514, D50010, AR060138, A45456, A26615, AR052274, AR066490, Y09669, AR060385, AB002449, AR066487, AR074136, AR074139, A30438, A43192, A43190, AR038669, D13509, X55486, Y17187, AR087528, U87247, AR008408, AR060133, AR008382, and X93535.</p>
HSFAK30	1088	883301	1 - 1039	15 - 1053	<p>BF038709, AL535064, BE735985, AL524497, BE791458, BE736087, BE562250, BE783282, AL526323, BG109153, BF796333, BE562249, BG008920, BE886594, AA603194, BE297680, AW162550, AW821216, BE884388, BE905469, BF738937, BE735782, AW875604, BF526909, BE241615, BF923489, AW371799, BF914307, BF912921, AA077320, BF816477, AL520849, BF737438, AA077375, R73777, AW964991, BF032261, H84735, AA333205, AI363439, AW160945, BG178107, AI076687, BF593670, W78920, AA677240, R07794, BE166170, BE858391, BF758159, BE166159, AI146527, AW402635, AW371811, AA078038, AL520850, R28399, R73930, BF924275, AA703130, R05969, AA335359, AA335698, R11257, BG177266, AA090927, AW901978, BF977977, H52765, AA077337, and AJ277740.</p>
HTTBM62	1089	883307	1 - 1515	15 - 1529	<p>AI125328, AL527538, BG035590, BF981939, BF730643, BE777871, AW402127, AU1049049, Z99416, BE621625, BE539325, AW501555, AA160575, BF751234, BE621043, BF875867, BF851714, BF850372, AW965571, BF155429, H14122, BE302965, AI557032, BF032391, BG166905, AA100571, T08526, BE622467, BE897998, BF3331625,</p>

					W24673, BF810650, BF810638, AA312298, AA364076, R84541, AL527537, X93826, AW859974, BF334501, AW579095, BF879891, BF963697, AA843439, AK022661, AF293335, and AL137523.
HFCDT23	1090	883327	1 - 380	15 - 394	BF683905, BE898653, BE261926, AL529590, BF971956, BG116771, BE263739, BE737365, BE267185, H18050, BF846466, BF846468, BF846535, BE785716, R55572, and BF314854.
HDPGU86	1091	883328	1 - 775	15 - 789	BF683905, AL529590, BF971956, BE898653, BE261926, BG116771, BE737365, BE263739, BF846468, BF846466, BE267185, BE785716, H18050, R55572, BF846535, BF314854, BF315199, BF314965, AI904024, AW270504, BF981018, BE796373, BE734552, BF317165, BE298415, BF185247, BE314590, BE313446, BE314719, and BF311361.
H2CBE07	1092	883335	1 - 2337	15 - 2351	BG035669, BE906066, AW192879, BE502489, BG167933, AI636759, AW958803, AW958798, AW304786, AW966067, AV726634, AW499902, AI818087, BE551739, AI962811, AW002879, BE907852, BF197557, AW966216, AI139820, AI703385, BG231549, AI765960, AV723104, AI420752, AA287817, AV724367, AI660053, BF132412, AW995337, AW134652, AW051811, AA830471, AI917176, AI761208, AI797936, BE466159, AI923951, BF183857, BE220074, AA938723, AW408136, AW837534, AA031728, BE898378, AI307761, BE219452, AI885507, AI088217, AV723103, AA972358, AW337437, AA599138, BE042863, AI307334, AV723166, BF247256, AA478708, AI347549, AW136648, AI310382, AW407219, AW517973, AA721966, AI377084, R54281, AA973851, AA478573, W45294, AW407970, AI033131, AA810858, AA031619, AA307073, AW002244, AA076314, AV649960, AA534598, AI694925, AA761785, AA827338, H88051, W65479, AI828859, C75311, AA913468, BF904403, AA323865, AW837600, AA772486, AI655884, AA009923, BG150148, BF856438, AA453971, W53019, AA111854, AA076486, BE968507, AA887506, AI619514, AA708726, AA732750, W65430, R51893, AA046962, BF434548, T10188, H65908, H73031, AI915339, AA383766, AI243262, W40166, H88262, AA363997, AA046897, AA847922, AW837536, T60023, BE161276, BE774532, BE161271, AI032598, BE161274, AA644330, H30061, H30071, AA337185, AA234173, H65822, R00439, AW510703, BE170717, AA740776, BG032221, BE764245, H77921, AA847923, AI910068, and AB000280.
HFHHS04	1093	883358	1 - 1408	15 - 1422	AL533833, BF967713, BE907577, AU126910, BE738662, BE731437, AW970004, BE962738, BF967077, BE788909, BF343694, BF207957, AI148761, BE737688, BE272694, BE866037, BF439497, BF208159, BE612999, AA865609, AW769492, BE564507, AI276480, BF676791, AI361348, H17761, AI302886, AA812569, R52799, BF965044, BF208977, AW014881, N94214, BF725860, BF889390, AV657236, AA873078, N91665, AW188283, AW952313, AA588382, AI393671, AI472062,

HTXLP33	1094	883359	1 - 1120	15 - 1134	BF725223, AW885466, AA922304, BF813629, AA836653, H70673, R22829, N64535, AI246157, R17380, C04806, AW059832, N48276, H53719, H59992, AW577228, H55989, R86909, BE772590, T90425, BF114901, H55988, H39639, AW577215, T67558, AA904164, AA317470, R01070, AI290335, AA653093, H59335, R79734, AA835734, AI240807, BF210281, AI796446, T90333, AA635600, R46017, R01796, BF208466, AW086141, AA873132, N47023, AW582547, T35677, AA731546, N80329, AI468699, AA319832, Z29924, AA677006, T39897, AI811905, R08309, BF949650, AW062936, AI928801, AW858815, AW178925, T12103, T69554, AI077843, AW363731, BF184855, T12102, AW818608, AA193652, AA235201, BE940375, BF243020, AI917109, BF211115, AW003912, H40065, AI080595, AW890963, AF153605, AF151861, AL136116, AK001347, AL023581, AX040006, and AI347304.
HMEKG76	1095	883364	1 - 1701	15 - 1715	BE263910, AW136741, AA732449, AW952461, BE905268, BF001705, AW005266, BG035177, AI418924, AW665083, AI823637, AI934452, AW753304, AI434286, BF798182, AA328784, BF748001, AV701882, BE747174, H49680, H49590, AA971066, Z41923, Z38218, AA626584, BF891761, BF871857, BE246116, and AK025823. BG025941, BG119256, BG029634, BG178386, BG255413, BG253982, AW340726, AV701987, W63619, BF476053, AI634542, AW300114, BF440047, AI672402, AI991208, AW664983, AW300127, BF062023, AI632484, BE326467, BE221787, BE501517, AI672557, AI498167, AW274451, BF950756, BF106232, H18069, AW006266, AI392880, AW182579, AW665773, AW573189, AI659606, AW664939, AI862877, AA669693, AI971599, AA029847, H17376, AA446051, AW197453, AI339270, AW469508, AI989522, N62971, AA455715, AI090733, BE168366, AI364520, AA432293, AW362319, N66064, H72683, AW205556, AW190461, BG255535, AA719182, AL523442, AI168162, BF961464, AA278458, AA952896, H72682, AA029982, BF961416, AA024419, AI122611, AA459224, F07569, F07568, F07042, AI631939, H10769, AA383416, BF961418, AV683384, BE044173, R35808, R13304, AV727526, AV727003, AA715091, BE174455, AA365202, AA365102, H10770, BF842071, AW593191, N33816, AW887602, BE171075, AW579496, AW378486, AI368524, AA089894, AI935327, AW057906, AA780265, W61128, AA091950, AV714959, N95657, BF766303, N79875, N56479, BF957703, BG249755, BE140681, BF886485, BF196618, AI243525, BF733772, AI921096, AA383283, BE812538, BE222612, AI001837, AI870510, AA471159, AW968418, AV713510, AW887634, AI912594, AI681695, AL121749, AK024813, and AL117336.
HTENG02	1096	883375	1 - 967	15 - 981	BG032568, BG258693, AW361921, AW452028, AW003102, AW074299, AA132510, BE886540, BE251624, AA132822, AI672110, AI913647, BE184180, BE890999, T08399, AA927474, AI738889, and BE546689.
HTOAW80	1097	883376	1 - 1460	15 - 1474	AI821606, AI826629, AI304327, AI660560, AI791844, AI984141, AA573825, AI991272,

HAJAW57	1098	883401	1 - 1023	15 - 1037	AA593860, AI983793, AI274929, AI346155, AI660493, AI281211, AW050605, AI821178, AA618335, AI732165, AW009962, AA469031, AI262416, AI924216, AI695625, BF917041, AI921289, AX035346, AX035348, Z57552, and Z59954. BF528058, BE273923, BE439742, BE408159, BF307520, AI813432, AI292245, AI814563, AA019878, BF196961, AI831724, AI582764, BE268324, AW770967, BE270519, AI186850, AW410293, AI283062, AI219926, AA058975, AA973092, AA012909, AA505456, AA400955, AA460462, AI351691, AI149149, AI521938, BE886618, AI582775, BG120766, AI200494, AI280986, AI264484, BE410391, BE967314, AA601074, BE385012, AW009398, W92428, R88287, BF930634, AA825970, AW965062, AA019885, BG150336, BE536000, AI24437, AA343573, AA363038, AW672945, AA401034, AA375507, AA058391, R98528, AI990124, AA811179, AW994042, AA360468, AW994258, AA504263, R16603, AI005450, AA337539, BE175409, T85469, BF801743, AA312024, R08542, BF768328, BE251984, AA334893, AA702742, BF803105, AW006005, AA670319, AA386071, AW366954, BE935221, BE817925, BE818000, BE829709, BE818073, BE829698, AI497990, AA701876, BE818093, AI356246, AI915140, BE818034, BE818001, BG232121, AA287876, AA883159, AA825603, AA278771, AW978957, BF349466, AA324897, AI185067, BE817924, BF692937, BE818079, AW956436, BE001853, BE931047, AA164277, AA308982, BE828336, BF958125, R16545, AI367795, T85371, AA588089, AW006825, BE698240, AA864538, BE082704, BE095169, AA463402, BF921578, AI133147, AW966558, BG112207, AW389192, AA001880, AA502407, AI339506, AW389196, BE568553, BE933379, BE698404, AF116666, AC005876, and AL161936.
HTEHF89	1099	883419	1 - 761	15 - 775	AU118684, AV728273, AV717005, BF575231, BE748156, AV718330, BF033632, BF979733, BG104800, AV734854, BF691687, AL038768, BF983256, H17763, BE738971, BE568917, BF246715, AL035739, AA084554, BF970684, R52491, BE785069, BF904068, AV717056, BE877473, AV726438, H16532, AI903894, AI750581, R21494, BF351545, AV738720, BF790498, Z41981, BF035136, Z46107, BF241139, R13337, BE087028, AA322574, AU151320, AA448043, AA813354, N45076, T26420, AA461375, AI903843, BE708531, AI792383, AF212245, AF161445, AF151047, and AK021683.
HSYBB84	1100	883420	1 - 1106	15 - 1120	AU118684, BF970684, BE877473, AV728273, BF983256, BE748156, AV718330, BF575231, BG104800, AV717005, BF033632, BF691687, AV734854, BF979733, BF035136, BF790498, AL038768, AU151320, BE568917, H17763, AA813354, BF246715, AL035739, BE738971, AA084554, BF904068, H16532, BE785069, R52491, AV726438, N45076, Z43102, AI903894, AI750581, BF351545, AV717056, AV738720, N27471, R21494, Z41981, AA490571, BE708531, R13337, R34412, BE087028, Z46107, BF241139, BF980024, BF949574, AA448043, AA322574, BE172329, BF734574, BE748570, BE765651, BE765971, BE766126, BE765613, BE765878, BE766444,

					BE766511, BE765418, BE765879, BE769154, T78200, T26420, BE828025, BF734672, AA461375, AI903843, AA625491, BE620517, AL035740, W20261, AV702789, AW963862, AV704785, AV705246, AA092518, AW957677, AV692197, AV707067, AV705437, AV703591, AV725031, AW963768, AV709273, AV703515, AW964410, AV726787, AW959601, AV707088, AV684362, AV704607, AV707304, AW949478, AV727510, AW956792, AW950443, AV703878, AW960601, AV705684, AV727381, AW952403, AV709580, AW952183, AV726026, AW952751, AW956075, AV645936, AV709587, AW955723, AV658084, AV692600, AW962978, AV650315, AV697880, AV659389, AV727613, AV656373, AV726010, AV660258, AV708109, AV647789, AW959521, AW956474, AV727787, AV659294, AW960655, AV703146, AV725745, AV686060, AV728148, AV660608, AW951239, AV726590, AV656478, AW951187, AV703790, AV709314, AV653353, AV654070, AV709935, AV691080, AW951281, AV702385, AV658275, AW949802, AV652001, AV695700, AV728715, AW955662, AV703669, AV707979, AV725208, AV727003, AV706975, AV725582, AV708786, AW957517, AV659547, AV727526, AV725618, AV651920, AW954439, AV725633, AV702266, AW953797, AV725577, AV725033, AV706223, AV728924, AV725617, AW954206, AV707863, AV725991, AV696931, AW952410, AV703062, AV727822, AV699089, AV705135, AV701874, AW954697, AV703501, AW962444, AW964585, AV702772, AW954237, AV706417, AV707401, AV701183, AV709660, AV704585, AV654035, AV707652, AV707663, AV707654, AV728721, AV683994, AV704042, AV654282, AV697288, AV709880, AV729220, AW954134, AV687035, AV698290, AV706882, AV704847, AV694836, AV697498, AV727314, AV702954, AV694812, AV686420, AV727238, AV682997, AV696866, AV727126, AV707656, AV655890, AV728997, AV701946, AV706162, AV686390, AV705635, AV702794, AV656256, AV686417, AV686083, AV698429, AV656240, AV655577, AV704217, AV692972, AV694871, AV727459, AW954248, AV655901, AV689410, AV695545, AV687946, AV702790, AV728546, AV703762, AV702854, AV706734, AF212245, AK021683, AF161445, AF151047, AL121694, AX047063, A62298, AR050070, A62300, AX009343, AX009341, AX009337, AX009335, AX009345, AX009342, AX009344, AX009340, AX009339, AX009336, AX009338, AX009334, AX047062, AX047064, A82595, A82593, U94592, Z30183, U45328, AX040581, AF006072, AF320628, AB002453, AR025466, and AX046743.
HTJMD30	1101	883430	1 - 745	15 - 759	BF793125, BG249406, BE395704, BF794230, AW964084, BE896822, AV713741, BG166649, AV661198, AV714350, BF967229, BF382749, BF245290, BF675022, BF213417, BF668388, AW364013, AA171435, BF965857, BF246319, AA305800, AA356684, AA375715, AI418308, AA654812, AW401534, AA373289, BF035681, and R57135.

HELFG05	1102	883434	1 - 3660	15 - 3674	AL527597, AL529809, AL514080, AL527596, AL530567, AL526637, AL529295, BE782057, AU136598, AI114859, BF511315, BG122646, BE899304, BF060737, AW963787, AI655903, BF433373, AI861932, BF433046, AW959237, AI861943, AI638304, AI830718, BE407719, BF508933, BG002362, AI640304, AW880750, AI694708, BF447073, AW701903, AA422774, AI884667, AI862404, AI694324, AI419019, AI381931, AI990933, AI990711, BF062018, AI889002, AW450416, AA496239, BF000126, AW572529, BF588721, AA780173, AI148378, AW104502, BE670537, AI200382, BE048538, BF110069, AI248156, AI366216, AI086796, AA442132, AW452176, AI337098, AA434531, AI651012, AW451933, AW663382, AI910996, AA429763, BF001754, AW172442, AI798632, BF114632, AW450457, AI686495, AI565622, AW771410, AI346793, AU156790, AA834046, AI074599, BF508482, AW471200, AI140806, AA704933, AI183801, BE467855, AA722574, AI675788, AW339508, AI310364, AI298503, BF509650, AU144823, AW294987, W68566, AI675232, AI872891, T93878, BF924951, AA442101, BF987529, BG057507, AI364465, AI193543, AI130863, AI765479, AA456203, BE645691, BF928269, AA723857, N92388, AV724981, AI468507, BG006079, AW770995, BF477789, AI672711, AW449730, AA010215, AA427828, AI187099, AI537838, W68567, AA621634, AW470742, BF111464, AA885026, AW023979, AI183292, AI954815, AI313208, AA442131, AW135628, AA340007, AI004499, AI417504, W24584, BF063027, AI371368, AW449927, AA375179, AI963892, AI916136, T09256, AI921195, AW079270, R86293, AA815198, F30301, T54370, N54040, AA707604, Z19140, AI349321, AI571348, T93921, AW879730, AI242929, AI193748, W95356, BF062075, AI183908, AA330901, AI825347, AW471024, AI926388, AA903834, T54262, AA719132, AA593079, AW956432, AA610289, AI401113, AI202906, AI640676, AA093708, AW571951, BF927226, AI919371, AA093723, AI620803, W73758, AA010274, AA044379, AI868834, AA095496, AA044447, AA294936, AI002625, BF853901, W95275, AW796789, AW452667, AA496240, W73592, AI803594, AP000501, AK001914, AL110244, AB040964, AF298153, AF206673, AL137610, AF130058, and AI659780. AW976358, AV686983, AI807087, AV646121, AW961968, AV646138, BE549529, AA424670, AW271548, AI419841, AW592539, AW501010, AI538436, AW501128, AA424573, BF700169, AA770475, AV659105, AA004250, AV660261, AV658479, H72674, AV658573, AV660130, AV660299, R00934, AV683433, AA873728, AA742969, AV646353, AV646230, T08315, T77004, AW796868, AV707357, F13040, F12949, AA972636, AA699932, AA761228, AA766036, AA987961, AA947936, W72622, W27156, AW016152, AA761066, T75185, AA488904, AW138334, AI866469, BG110517, BG029667, BF061529, AI433157, AI554821, BG252929, AW151136, AI539771, BE897632, AI537677, AI494201, AI500659, AI815232, AI801325, AI500523, AI582932,
HHEHG38	1103	883493	1 - 1843	15 - 1857	



AI872423, AI923989, AI284517, AI500706, AI491776, AI445237, AW151138, AI521560, AI889189, AI500662, AW172723, AI284509, AI889168, AI440263, AI866573, AI633493, AI434256, AI805769, AI434242, AI888661, AI284513, AI888118, AI859991, AI436429, AI889147, AI371228, AI440252, AI866786, AI860003, AI610557, AI242736, AI887499, AW015583, BF812963, AW858243, AI538850, BE885490, BF812936, BG257535, AW015071, BE222387, BF338002, AL045500, BF795712, BE886728, AW138149, BG260144, BF108457, AI890907, AI539800, BE965355, AI866465, AV743631, BF058122, AI538885, BF910810, BF197725, BE326333, BF812438, BE674575, BF057123, AI274759, AI371251, AI866510, AI681193, BE219161, AI801957, AI923046, AI500714, BF921092, AA826395, AI355779, AI499986, BE673679, AL047422, BE327092, BE963918, BE964512, AW139596, BF433075, BF811804, AI433976, BE895765, AI690835, BE465341, BG108334, AI648567, AI539781, AI366900, BF970652, AI476086, BF968504, AI581033, AI559957, AI432666, BE963035, AW197139, AI539707, BF814409, BG113712, AI348880, AI521571, AI568138, BF814541, AI275175, AI696060, BE964959, AI608805, BE964576, AI499463, AI280670, AI920968, BE964767, AI610362, AI620284, AI440239, AI521596, BF727352, BG120046, BE965724, AI537273, AI436456, AI371265, AI963846, AI744185, AI567940, AI610357, AI817244, AI491710, AI612913, BF904178, AL119319, AI285826, AI863014, AI521594, AI499512, AI889133, BF526393, AL042551, AL042365, AL042787, BGO29053, AI042572, AI513743, AI610402, AI434223, AI697243, AI610429, AI628850, AI288574, AI433968, BF812961, AI539632, BE895585, AL515375, AI889148, BF987113, AW118237, AL042377, AI539847, AI872074, AI828583, AI887775, BE875407, AL042538, AI872300, BF968907, AW172745, AL042557, AI538878, AI354998, BG179586, BG111590, BG121959, BF968622, BG114012, AI567935, AI805762, BG165260, AI432656, AW268060, AI308035, AX040958, AX040974, I89947, I09499, A08916, A08913, I48978, AR038854, AF032666, A08910, A08909, I46765, A93016, AK026086, AL122049, AB048953, X70685, AF113222, A08912, E12747, I89931, AK026865, AL080086, AR087170, A08908, AK026627, U66274, AR079011, AR079012, AL162062, AL133665, AL389939, AK000718, AK024992, AF271350, I96214, AR034830, AL137271, AK025414, AK027204, M86826, AF185576, A012755, AF116682, AB049892, AL049466, AL162006, AL133072, AL137283, AK000212, AK025524, AF085809, AL137557, AF119875, AF143723, AB052191, AF130077, AF090896, Y07905, AL110159, AL133560, AF118094, AF130055, AK026642, AK026784, AF153205, AB048975, AL117460, AL359601, AK026927, AF090901, AL389935, AF081197, AK025383, AK026462, AL122110, L13297, AF067728, AX042059, AL049283, AK026480, AL133080, A77033, A77035, AF087943, AL133081, AK026744, AX045627, AB050431, AF090903, AL137533, AL133077, AL050146, AL353940, AL133049, E15569, AL137292, AF081195,					
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HSLDT25	1104	883540	1 - 1531	15 - 1545	<p>BE783089, BE789391, BF772511, BG165382, AI862790, BF771072, BE152519, BF932134, AW818329, BF674751, AW819150, BE843100, AW819068, BF900998, AW819148, AW859021, N44628, AW819071, BE843098, AW858883, AW819129, BE843109, AW818377, AW858884, N33817, BE843087, BF334447, AI421263, AI920892, BG109013, BE139139, AI250552, AI251034, BE927394, AW270255, AI284543, AI251284, AI251203, BE138387, AI561210, AI537020, AI340151, AI254770, AW303098, AI223626, AI278972, BF744666, AI753672, AI627614, AW270385, AW969743, AI362442, AI249853, AA464271, AA483606, AW674258, AA570740, AI251241, AW862005, AW063362, BE042006, AL135605, AI538491, AA568204, AL079894, AU146936, AI889579, BF681363, AL009051, I34294, AF111168, AC004971, AL034405, AL121928, AL158824, AC004826, AC004686, U78027, AC005913, AC005005, AL133153, AL121601, AC006241, AC007276, AC007199, Z99127, AF165926, AL021918, AL008636, AC018639, AC004217, Z81314, U52111, AC004797, AL035659, AL158830, AL499629, AL078461, AC027319, AC008482, AC009238, AC007050, AL157701, AC020904, AC006312, AC005245, AC002430, AC011811,</p>
HSDGH19	1105	883575	1 - 1696	15 - 1710	

					AC004983, AL031670, AC009721, AL109743, AC010150, U07562, AC003026, AF190114, AL049748, AC005363, AC011895, AL031281, AL121947, AC006454, AL031427, AC024561, AC007384, AC008623, AC018720, AC002418, AC004167, AC005625, AC008070, AL021939, AC002565, AL049839, AC002483, AC006160, AC008403, AP000505, AC020629, AC006251, AC002559, AL136979, AC024571, AC008392, AL033529, AC004985, AL031685, AC005632, AC004230, AC007371, AP000555, AC012384, AC004491, AL135744, AC002429, AL109825, AC002470, AL121753, AC007620, AL080317, U91323, AC005914, AF091512, AP000045, AR036572, U91328, AC007254, AP000359, AC007766, AC004876, AL049843, AC005800, AC005015, AB003151, AC005740, AL008718, AL159168, AC006211, AC005377, AC006483, AL022320, AC008753, AF038458, Z93015, AC002044, AC020552, AC012067, AC007011, AC024563, AL008627, AC007014, AL353807, AL353748, AC002553, AC003042, AC020917, L78833, AC007957, AC005098, AC011526, AC005067, AC004867, AC004638, AL031286, AP001748, Z74617, AC005046, AC005082, AC005412, AL121712, AC005924, U91326, AC006057, AL133387, AC005796, AC007021, AL096870, AL139339, AC004166, AC018663, AC005821, AL133551, AC005154, AP000193, AC005004, AC003098, AL136300, AL162724, AC005519, Z77249, AC004386, AC004655, AL021808, Z84469, AC005089, Z97181, AC005479, AL050349, AC005071, AL133445, AC006509, AC004854, Y14768, AP001718, AF111169, AC008745, AL132987, AC002996, AL135927, AC007227, AC003035, AL163541, AC005666, AC011494, AP000700, AC006014, AC009506, AC000134, AC005006, AC008893, AL158198, AP001717, AC084732, AJ132695, AL035681, AL133243, AP000501, AC012519, AL031659, AF317635, and AL353574.
HCEOU19	1106	883591	1 - 360	15 - 374	BF685763, AJ272063, AX026848, AX002940, AX002942, AJ277028, AX002946, AF168787, AB041029, AB040873, AF158248, AF029310, and AB015231.
HBIMF04	1107	883607	1 - 1390	15 - 1404	BE732755, BE903494, BE732219, BE733100, BE798997, BF307455, BE790098, BG116782, AI922958, BE019403, BF056056, BF663106, BG004431, BF797004, BE296637, BF341424, BF346884, AI972432, BE779390, BF308290, BE392828, BF035118, AW614802, AW391908, BF856907, AI922949, BF037039, AW630084, BE205784, AI961967, BE297217, AA568658, AA484955, BF205124, BE268804, AW207083, AW139687, BF792778, BE247595, BE019143, BE241782, AW581613, AW195438, AW296274, H55661, BF871016, AW294860, AL119220, H61275, AW748832, R87853, H52133, H38451, R87771, BE620360, R87761, H52024, R90897, R88865, R87838, AL449244, AF218001, AL022328, and AK024447.
HSKZE56	1108	883619	1 - 2762	15 - 2776	BG106476, BG119187, AA181053, BE257196, BG236268, BF197693, AW070995, BE301017, AW955015, AW024308, AI371795, BF894719, AI161239, AI818105, AI394273, AI093150, AI887545, AL134379, AI363188, BE866848, BF530069,

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HLJBD90	1109	883638	1 - 1620	15 - 1634	AL522893, AW603667, AA778739, AW444921, AI798800, AA479455, BF529062, AW505437, AI376172, BF515391, BE073325, BE073324, AW015166, Z44874, F07594, AA910991, BG033712, AW971745, AW804686, AW392670, BE695785, AW861944, AW877209, AW604723, AL119444, AL119443, AW858526, AL119363, AW858525, Z99396, AL119319, AL119457, BE705903, BE705906, AL119324, AW577135, AW372827, AW384394, AW861889, AW858455, AW363220, AW604726, AL119497, U46351, AL119484, AL119391, AL119355, AL119483, U46350, U46347, U46349, U46341, AL119418, AL119341, BF868697, BF868687, AL119439, BF868684, BE705905, AL119522, AL119396, U46346, AL119335, AL037205, AL043019, BE705904, AL119399, AL119496, AL134538, AW861954, U46345, AL042614, AL042542, AL042544, AL042450, AL042984, AL042965, AL042975, AL043029, AL119304, AL043003, AL042551, AL119464, AB026436, AR080280, AR054110, AJ251859, AX030435, AR060234, A81671, AJ279014, AR066494, AX046357, and AR069079.
HAUAX28	1110	883675	1 - 1256	15 - 1270	BG168177, AW974559, BG034745, BG035720, BG179991, AW182455, BF037682, AV703335, BE779168, AV705957, N36850, BG256622, AL522341, AI300110, AI346445, BF029781, AW249181, BE779198, AW936803, AA780230, AW009828, BF509803, AI346064, AA649333, AA10804, BF438636, AW188356, AI144205, AA044245, AA403109, AI144550, AA284475, BF897751, AI034452, AA009651, AI127267, AA527043, AI809554, AA401250, AW936628, AA830947, AA872387, AA975365, AL522340, AV701805, BE177161, H12949, AA723672, AW182383, AI094582,

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HUCPU88	1111	883702	1 - 972	15 - 986	BE615164, AW964181, N30397, AA059386, AA602790, AA557327, R85411, T70265, R72754, AA669881, H20815, AW239428, H85968, BG118388, AA971100, N62599, R44089, AL119174, R72761, H24961, AA932443, T56726, F09218, BF307164, AI693610, -AW013841, AA770306, BF686057, AA627783, AA205013, AA378928, BE159080, AI279987, N78366, BE707911, AI791356, AF083810, AC005786, AF102508, AB033068, and AC005787.
HFXXJ22	1112	883713	1 - 425	15 - 439	BG030554, BE727682, BF339758, AU122088, BE880357, BE315458, AU121559, BG108206, BE730455, BF339394, BE514031, BG120909, BE273933, AU137372, BE304860, BE674892, BE293337, AI925240, AW205565, AI879305, AI992138,
HWHPD05	1113	883740	1 - 1771	15 - 1785	

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HFRAN15	1114	883797	1 - 1524	15 - 1538	AA564713, AA491341, and AA489985.
HHGCV39	1115	883848	1 - 690	15 - 704	BF437434, BE562975, BE646364, BE898827, BE734905, AW245842, BE741623, BE387443, BE275558, BE791237, AA393921, AI568587, AI805978, BE386863, BE857544, BE387535, AA845548, AW627607, BE899199, AA227916, AA530975, BF340639, AI391625, AI199262, BE311908, AI201926, AI675180, AI123847, AA463396, AI128152, BE384118, AI197839, AA227574, AA505110, R52594, AA913172, AI187762, AW408817, AL535519, AI076304, AW009600, AA465034, AA913634, AA885156, AA488109, BE265829, AA464960, AA884143, AA452881, AI886462, AI188491, BF446332, R53393, AA424231, BF221728, BE243531, W60397, R84997, AI312011, BE903843, AI675231, R40380, BF331414, D45528, BE249813, F37062, BE670322, AI473277, R84954, AA904651, AW407603, W60306, AA322573, BF033345, AI368380, AL535520, AI928674, AI886883, AA336279, AI471250, F31267, AI357522, BF032040, AI240487, BE293522, BE906959, BE799659, AA340807, AW571615, AA322560, AI915463, AA083769, F30739, AA393689, AA460456, AA351110, AW505351, AA459967, BF035088, BG248165, AW957595, BE905101, BE910005, R18201, R55563, AA460455, BE546590, and BE796067.
HMAFM8 0	1116	883887	1 - 1611	15 - 1625	BG105336, AW957993, BF346821, AA280769, BF980483, AA378985, AI016927, BF921687, AU125937, AI963454, AA302139, T59191, AI133676, BE718711, AA528018, AW803081, AU154392, BF589781, AU154557, AI559863, AW891165, AI623682, AI915295, AI832038, AA829924, AI357049, AW263804, AI621341, AI565172, AI679550, AV649336, BE155861, AW081343, AI952784, AA833819, AL040694,

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					<p>AF061836, AF130105, AL137533, AL137547, AL442082, AR087170, AK000137, AB049900, AF305835, I03321, AF242525, AF166267, AK025375, AK025524, AB052191, U75370, AF069506, Y08769, AF113013, I89934, AR080774, AF002985, AK025378, AK026959, AK027204, AK000435, AL133014, AX045159, A18788, AL035458, AF141289, AK027081, AK026057, AK026642, AF202636, AK025092, AL133624, S69510, AF090901, Y17327, AF119337, AK027105, AK024594, AK026894, AB048953, AL080158, AK000753, AK024855, AL031346, AL389939, AB047248, AF159141, AF118090, AF079763, AB007812, I05032, AF130077, AL133077, AL137294, U62966, A08916, AF078844, AF067790, AF119875, AR000496, AB047966, U39656, AK026630, AB047869, AL442072, E02221, AR073709, AK026600, AL161628, AL050170, AK026592, L04849, Y10823, X62580, AB050418, AL049314, AK025084, AF110640, AL161953, AK024747, AF153205, AF090900, E06743, D16301, E15569, AF207829, AL049465, AK026534, AF130104, X98066, AF119883, AR013797, AB016226, Y10080, A86558, AB049849, AL162008, AF067728, AX042059, A65341, AK026528, AL050024, AX047644, AF119896, A83556, A76337, AB047623, AB047941, Z82022, AX017991, AL117416, AF218006, AF217987, AK026784, AF183393, AB048975, AK025431, X92070, AB048995, AB049758, AL353940, AK024538, AF139986, AL050393, AL137641, X93495, U36585, AF008439, I89944, AC007383, AF130058, AK026395, I18355, AR085690, AX005848, AX005804, AL389951, AF085809, A93016, AK026628, L13297, A93350, AL137640, AL359596, AL117583, AF116650, AF031147, AK026571, AF114818, AL355713, X06146, AL050116, AF130092, U72620, AK026649, AF261883, AF013214, AK000450, AX040958, AK026533, AL133640, AF218033, AF200464, U95114, AX010492, AK026627, X57084, AL359620, AF180525, AL096751, AR068466, AK027136, AJ006417, AL137292, AF081197, AF081195, AL133665, AK026532, AB049848, AL390167, I22272, AL080124, AL117648, and AL136884.</p>
HAPOW71	1117	883889	1 - 2598	15 - 2612	<p>AV725650, AA127680, BE161426, AW130367, BF343057, BF575221, N95226, AI096437, AI161240, W58383, AW966449, AI356752, AI093508, AI057144, AA044288, AI423547, AW130361, BF941499, W21055, AI221152, AI094774, AI352542, H47283, W03697, AI002491, AI891136, AA044116, T53270, R24320, R48378, AV658066, AI829703, BE140169, AI819388, Z44849, R16574, T39273, AA095159, Z25099, AW273857, AA384077, R16633, AI245095, AW026140, T93764, BE927909, N73937, AW118768, AA121543, AA995178, AI453845, AW044037, AA703455, AI452494, H40993, R48277, AW629019, T64039, AA904647, AW073189, AW263913, AI096938, Z28777, AW797518, AI039546, AI434419, AW050649, BG003285, AI240412, AA886341, H23905, AI695284, AI767991, H47284, BF921915, AI309041, BE927916, AA724059, AI352281, AI584012, AA618131, AA357401, BE936061, AI796309, AB018301, AL096772, and AB019120.</p>

HBCBW64	1118	883947	1 - 627	15 - 641	<p>BG169614, AA588137, AI080284, AA151600, AL524096, AA812400, AI379227, AI689395, AA947939, AI022836, AA88610, BE788093, AI033492, AW152233, AW079971, BE539310, AW079823, AI929308, W45396, AW474029, AA102652, AA719067, AI695032, AA719260, BF765494, BF305841, HI17404, AI364993, T26560, AA233641, AI866615, AA977846, AW075310, AI738959, AA774424, AA516203, AW731874, AA847459, AA418729, W40329, AA293818, BF000507, AI016363, AI306738, AW583420, AI190557, T94970, AA233651, AI583954, AA694563, AW881338, BE763499, AI086511, AA402466, AL521980, AI278358, AA922883, AA418783, BE962006, AW241548, BF088398, AW381697, Z38371, AW371444, AW371494, AW371428, AW371434, AW371492, AW371439, AW371500, AW957293, AW371497, AW752346, AW371425, AI764992, AI673119, AW381740, BF855325, AI223910, AA995283, AA159060, AW371491, AA149481, AW062924, BF812971, AK025971, and AL137381.</p>
HBING74	1119	883950	1 - 2228	15 - 2242	<p>AL525159, AL535363, AL524097, AI080284, BE796772, BE563329, BE794442, BE749183, BE799726, BE899534, AL521981, BE793279, AL524096, BE896385, BE867259, BE872489, BF034350, BF305841, BG169614, BF306743, BG116087, AW957293, BG180957, BE788093, AA588137, AA418783, AL521980, BE539310, BE267081, BG122825, AW602032, AA207179, AL527120, AA151600, AW247737, AA812400, AA947939, AI086511, AI689395, AI016363, AI022836, AI033492, AI379227, AA888610, AW152233, AW079971, AI929308, AW079823, AA102652, AW474029, W45396, AA719067, AI695032, AA352490, AW583649, BE047806, AA719260, AA233641, BF765494, BF998700, HI17403, BE769863, T26560, HI7404, AI364993, AI866615, BF000507, AA977846, AA418729, R69949, AA774424, AW075310, AW731874, AA847459, AI738959, AA694563, AA516203, AA922883, AW583420, AI278358, AI306738, AI583954, AI190557, AA233651, AA293818, W40329, AA402466, BE929307, AW583583, T94970, AW881338, Z38371, BE763499, BE208442, AA995283, BE962006, AA149481, AW371428, AI929385, AW241548, AW371500, AW381697, AW371494, AW371492, AW371444, AW371439, AW371425, AW371434, AI764992, AA781088, AI673119, AW381740, AW753538, AW371497, BF812971, BF088398, AW062924, AW753528, Z42104, HI3358, AW752346, AA215396, AI870635, AA101306, AW062925, BE707483, AW602031, AW371491, BF855325, AW751955, AK025971, and AL137381.</p>
HBIMJ94	1120	883951	1 - 3145	15 - 3159	<p>AL537548, BG033689, AU125375, AI869999, BF002837, BF664401, AI798618, AI741556, BE909815, BG113586, AI761864, AI302794, AW051327, BE787155, AI969505, BF888219, AW731698, AU138035, AL537547, AI870739, AI160669, BF306316, BF340306, AL044737, AJ003566, AI879426, BG057339, AI368084, AL045530, AA120795, AA761346, AL044954, AI129111, AU149046, AW593269,</p>

					<p>AI829047, BE048019, AW386998, AA398635, AI745690, AI129490, AI818097, AI677689, BG119857, AW576582, AI813539, BE545657, AW206503, AI362857, AW778791, AA554314, AW504822, AA595366, N49009, AA120796, AW958494, AI085332, AA743798, BG149270, AA765065, AA905368, AA405797, AV709581, AU157434, AI985137, AA054973, AI308765, AI969970, AI952601, AI003560, BG111326, AA309922, AI393996, AW134896, BE706341, AW119166, AI867060, AW390674, BE645390, BF888221, AA235821, BF957450, W67634, AA760821, AA52287, AW302538, AA913062, AA577405, AW373532, BF445532, AI869892, AA744792, AI984728, F29393, AW014602, AW500051, AW957323, AA716096, AI863318, AI446410, AI656236, BF476012, AA653987, AW872865, AA983618, BE870667, AA68409, AW204394, BF957447, BF435499, AA932027, AA393294, R07342, AW474166, AA353241, AA490924, BF510147, AI003561, AA405921, AA550804, AI702719, H60329, AI583001, AI245909, N59832, AW337737, AA716517, AW197895, AW273387, AA931526, AI918202, N66973, AA398408, AW009122, AW197786, AW149449, AW149357, AA642372, BF509209, AI934859, BF445981, AA358990, AW195868, AA055409, AI203747, AA366960, AA676532, AI191649, AA147593, AA974844, AW591919, F04506, BF886561, AA770257, AW610036, AA019605, BG122089, F01717, BF114952, AI094856, BE503796, H55503, AA323399, AV682343, BE047660, BE930552, BE501983, AA402579, AA341237, AA897448, BE767816, BF663551, BG121061, BF509354, D31522, AI216487, BF222004, BE857255, AI971272, Z45600, AW131445, AI198034, AK002063, AB014585, AK022669, AI096767, AP001634, AC004527, AP001660, and AC006557.</p>
HNFCl36	1121	884007	1 - 948	15 - 962	<p>AW467020, AI823980, BE221723, BE501861, BE218181, AI912209, AW972520, AV657234, AA037250, BF034279, AW961986, AA348964, AI343781, AA836840, AI261736, AA705408, AI669241, AA989445, AI343945, AW292445, T69099, AI266440, AI629006, BF239609, AI203169, AW800659, AI830483, AA393609, R16478, AA505744, N74761, AI310153, AW466943, N52515, BF197524, AA037228, H82518, T69020, AA702850, H82519, AW292323, R16778, BF939632, and AJ404857.</p>
HAFAH26	1122	884076	1 - 1750	15 - 1764	<p>AL521180, AA843300, AW961520, AI911560, BF978618, AI523785, BE018217, AW237499, AI745296, AW085198, AI281417, AI276690, AL521179, AW451214, AA488829, AW968915, AA548082, AA296843, AI500123, AW961518, BE708301, AA296947, and BF925381.</p>
HE8MV45	1123	884379	1 - 787	15 - 801	<p>AW962692, AW374334, AI064813, T31706, T08905, R94666, T09212, BF734843, T31698, BE620271, BF734846, BE867273, T83796, BE273962, BE782895, BE311886, AA714176, BE264561, T27030, BE207353, BE151883, BE208595, BE272982, BE151914, BE151987, BF350438, BE151977, BE151910, BE151976, BE151911, BE151974, BF350429, AW748719, BE151904, BE151966, BE151968, BE151897, BE151854,</p>

					BF350425, BF350431, BE151907, BE151885, BE151969, BE151963, BE151869, BE151979, BE151866, BE151872, BE151889, BE151873, BE151849, BE151890, BE151843, BE151868, AW748710, BE151901, BE208508, BE151905, BE151861, BE151844, BE151871, BE151912, BE151850, AI655004, BE151864, BE151886, BE151874, BE151913, BE151846, BF350432, BE151839, BE151870, BE151887, AW239098, BE151862, BE151882, BE151845, BE151841, BE151847, AW748711, BE151842, BF350418, BE256119, BF330205, BF737941, BF804851, and AF196972.
HUKEQ96	1124	884532	1 - 1045	15 - 1059	AL533261, BF340090, BE747609, BF689115, BE312682, BE394938, AW409731, BE393786, BF527924, AW051802, AI633513, AW167864, AI936855, AA234656, BE676156, AU159621, BF881821, AW188496, AI336537, AI273398, AU152825, BF681190, BE465671, AI493382, AI372677, AI870333, BE297986, AW070957, BG027612, AI372678, AI261977, BE220670, BE296105, AW006652, AI378450, AA576714, BF770024, AI054043, AI027809, AA928668, AW183133, AI027815, AA971434, N59291, AA873864, C75089, T03424, AI394227, AI580687, T03371, T32966, AA954368, T33489, AA323766, AW864486, AW864516, BE868618, AA968925, R50305, AI453617, BE828625, AA732753, AI097581, AI364675, AA954339, AI468514, AA455474, Z40656, H06725, H23484, T87222, AI372675, R44940, R50314, AW008378, AA670426, AW409641, AW798484, R46701, T66743, AI523364, H23486, AI935180, AA037364, F10589, H05150, AW070382, AI742491, AA834030, Z39993, R45314, H24087, AI339720, AW148771, AW798918, H24300, R50306, R43016, T16039, H08380, AI745398, R53461, R50416, R50313, F04562, AI560142, R47781, R41995, F01724, F04226, T15999, R44142, AV682602, AI123903, AA322164, F09993, R42746, R40512, H86556, R43692, F04028, AI984376, BE155765, AA617843, T16439, T16686, AA353506, T10102, F01506, N55646, BE814269, BE327839, AW965613, AI304626, AW003241, AA677085, H06858, AA570641, AI284889, BF892771, BE770014, Z38178, AI005000, T34814, AI309342, R55721, AA311926, AA627965, D20632, AI268300, BF858389, AK024508, AK023132, AL137301, AL118506, and AI274937.
HKADF73	1125	884660	1 - 1528	15 - 1542	BE793658, BF876714, BE907146, BE736305, BE894722, BE730507, BE267635, BE513314, BE275444, AW245867, BE513686, BE267672, BG171290, BE263332, BE788961, BG024511, BE258053, BF876516, BE379305, BE513717, BE903702, AW967241, AL121012, BG027669, BG027270, BE798742, BG028318, AW958816, AW956440, AA311066, AA306676, AW963273, AW401816, AA371885, T49178, T81512, AW629725, T57058, T07931, BF838955, AA356751, T07932, T72953, AA299743, AI627847, AA325137, BE407556, BF876525, BE769969, BE769964, BE769968, AA205251, AA282627, AW401818, AI937147, BE812963, BE715767, AA419518, AA380700, BE769954, BE083342, BF818887, BF872393, AW793854, AA772907, and AW071882.

HSLEN72	1126	884818	1 - 572	15 - 586	<p>BE266962, AW246099, AW750974, BE266928, BF510708, AA722180, BF920184, R16951, T93190, A1275161, BE151494, T93096, and R16897.</p> <p>AW966053, D59927, AV719188, AV724520, AW975618, AW959597, D81030, AW966534, AW966062, D51799, D80227, AW966531, AW978634, AV699927, AW975621, D80195, D80269, AW966013, D58283, AW966054, AV719783, AW959570, AV718800, AV720464, D80193, D80166, AV718489, AW966041, D80038, AV720203, D51423, D59619, D80210, D80391, AW959628, AW960553, D80240, D80253, AV722801, AV719822, AV718692, AW973307, AV720731, AV700889, AV719324, AV718440, AV720028, D59859, AV720211, AV718844, AV719557, AV718770, AV699447, AW965177, AV723927, AV699550, D80212, AW949656, AW949642, D80196, D80188, D80219, AV719468, AV718633, AV723097, AW965158, AW949641, AW966050, AW949654, D80043, D59889, AV720791, AW949618, D59502, AW959202, AW975605, C14429, D50979, AW949655, AW978661, AV720812, AW949629, AW949645, AW949633, AW949632, AW949631, AW949643, AW949657, D59275, D80366, AW960465, AW949646, AW949658, D80378, D80022, AV721386, AW966043, D80045, AW949653, AW973447, AW959582, AW964488, AW973485, D80164, AW978648, D57483, AW965163, AV681510, AV681491, D50995, D59787, AV718938, D59610, AV718931, AV699669, T03269, AW966022, D80024, AW959799, C75259, AV720654, AV699746, D59467, C15076, AV700229, AW964737, AV719628, D80241, AV742001, AV742667, AW959469, AV701125, AV701335, AV701166, AV701043, AV701332, AV701017, AV701248, AV742048, AV701431, AW973541, AW959062, AW964477, D80134, C14014, AW973334, AW964756, AV681529, AV718707, AW965176, AW966029, AV699682, C14331, AV645389, AV719049, AV701419, AV742430, AV701154, AV645344, AW958992, AW966065, AW956434, AW965197, C14389, AW958993, AW959136, AV701443, F13647, AW752082, AW960414, AV699479, AW965185, AV645343, D51250, AV701130, AV701149, AV701422, AV718530, AW973474, AW962245, AV745080, AW956397, D80268, AV719913, AW965184, AW965175, AW966075, AW962082, AV744770, D51060, AW966560, AV720220, AV701428, AW973488, AW178893, AW973482, AV701415, AV701344, AW975613, AV719000, AW960564, AW973470, AA305409, AV681468, AW960504, AW964532, AW973465, AV701004, D58253, AW973330, AW960473, AW965196, AV720878, AV700622, D80949, AW753053, AW975623, AV721784, AW966023, D80168, AV720607, AV718674, AW960570, AW966059, C14227, D81111, AV699652, AV719727, AV701021, AW960454, D51079, AV700159, AV720150, AW960532, AV645383, AV645393, AV681528, AV681474, AV645339, AV681472, AV681507, AV681465, AV681525, AV681495, AV681505, AV681504, AV681486, AV681464,</p>
HTXDM64	1127	885098	1 - 1660	15 - 1674	
HAGDJ72	1128	885264	1 - 832	15 - 846	

					AV681487, AV681506, A90844, AX027925, AR070327, A84916, A62300, A62298, AX033851, AJ132110, AX047063, AX047064, X67155, AX035434, A78862, AX020191, A67220, D89785, AX020190, AX021518, A25909, AX047062, D26022, D34614, AJ302649, Y17188, AR018138, D88547, AR092424, AR025207, AF058696, X82626, AJ294956, AR077702, AR008278, AJ287395, AB028859, AF260572, AX028130, X68127, AR087649, AX015396, AB012117, AR088705, Y12724, A85396, AR074141, AR0666482, AX042372, AR074545, A85477, A4171, I19525, A86792, X93549, A82595, A94995, AR060385, AB002449, AR016808, AR008443, AF135125, AX035429, AX035428, AX035426, I50126, I50132, I50128, I50133, AR066488, AR016514, AR060138, A45456, A26615, AR052274, AR064240, AR074139, AB037923, Y09669, A43192, A43190, AR038669, AR066490, AR066487, AR074136, I14842, A30438, I18367, D88507, AR054175, D50010, Y17187, AB033111, A63261, AR008277, AR008281, AR008408, AR091537, AR062872, A70867, AR093385, AR016691, AR016690, U46128, D13509, I79511, A64136, A68321, AR060133, Z32749, AR087528, U87247, AB023656, U79457, AF123263, AR032065, X93535, and AR008382.
HTPHK88	1129	885476	1 - 1208	15 - 1222	BF677930, AA433834, AA427986, W38581, AV734598, AW959496, AA362763, BF445054, AA331674, W05306, BE813115, AA029735, BE766912, AA331672, W93893, H46399, AJ672548, AL637672, AA025077, and R26502.
HDPFA53	1130	885596	1 - 1165	15 - 1179	BE536400, AW954610, AV724270, H13753, H26446, AI097036, AA350964, AA629027, BF432511, BF977591, BF692169, AW997440, N22218, AA434495, BE184065, BF438461, AK026946, AC016995, and AF133670.
HMSDQ93	1131	886043	1 - 1178	15 - 1192	AA736485, AA363103, AW337819, AC005033, AC006544, Z97054, AL031276, AL034405, AC011489, AC004166, AC006064, AC005305, AC011449, AC005231, AC018663, AC005529, AP001754, AC008521, AP001724, AF047825, AL031280, AL355385, AL080243, AC004491, Z83819, AC010271, AC002302, AC005057, AL139353, AC006946, AC006160, AC021016, AC008044, AC005726, AL023583, AC005914, AC010605, AL353804, AC006088, AL034423, AC004383, AC005522, AC003108, AC004106, AC007637, AC007366, AC005484, Z98304, AC016637, AC005098, AC005924, AC002511, Z98051, AC006141, AC005899, AL031727, AC005103, and AC010412.
HSXAD12	1132	886222	1 - 1040	15 - 1054	AW004064, AI917503, BF530181, AI472000, BF108918, AI769374, BE793047, AI796095, BF968409, BE890615, AI521161, AW081955, BE783584, BE378720, BE78855, BE877449, BF206238, AW418833, AI004675, AW504360, AI239708, AI393067, BG116440, BE382908, AI150276, AI167968, BG177936, AU140976, BF002161, BE267898, AA992376, AA808590, AA815053, BF001613, BG059242, BF478218, AI024043, BF691484, AI479792, BF478041, AI967978, AA434432, AA663539, AI188140, AI762783, AW590813, AW590320, BF692602, AI523700,

					<p>AI953131, BE184459, R91767, AI492033, BE872991, AW028459, AA917611, BF573567, BF056418, AA954498, AW136291, AA337228, AW068312, AI198049, AI470893, AW161411, BF591075, AA336491, AI696080, AW162916, AI825065, BE782905, AI969755, BF109293, W01493, AA434205, AV653316, BF977599, AA689578, BF445446, AA741139, BE872916, AA931970, AI742548, AI820073, AA670110, T82239, AW796017, BE002869, AW959163, W56832, W74054, AA296716, BE094684, BE904507, AI363793, AA358370, AA652867, AA299518, BF809760, BF809781, AX013113, and AK023846.</p>
HWBAL42	1133	886307	1 - 662	15 - 676	<p>AW003168, BE466532, AW237147, AI439258, AI956078, BE645843, BE781625, AW970295, AA779854, AW512289, AI609159, BE881430, AA534948, BF980307, BE891215, AI688602, AU157509, AW439055, R67130, AW970374, BE047217, AI625314, AI814840, AW028847, AI242712, R70223, BE047205, N30751, AI686110, BE832827, N30745, BG163314, AW510711, AW020132, AI784170, AW016865, AI688378, AI581165, AA521256, AI471337, AA102353, H04460, AA580884, AW674817, BF091838, AW673953, AW972092, AW972091, AW753744, AW972090, AW968729, AW968355, AW972093, AW968356, AW971740, AI431351, AI432658, AI431337, BE672732, AI623302, AJ295745, AK002079, L31840, AX030435, AX030436, Y17793, AF064854, and AR071207.</p>
HUJBO10	1134	886364	1 - 1204	15 - 1218	<p>AI732405, AA098790, BE593318, AI919234, BE710120, BE710098, AI252660, AI357112, AW379801, AW136535, AA972854, AI242200, BE046009, AA085713, BG054880, AI472075, AA011636, AW971745, AI970335, AW392670, AI119418, AW604723, AW804686, AW858526, AW858525, BE695785, AW861944, AI119319, AI119522, AI119443, U46347, AW384394, AI119457, AI119324, AW861889, AI119484, AI119391, AW858455, BE705903, AW363220, U46350, U46351, BE705906, AW577135, AW372827, Z99396, AW877209, AI119497, AI119396, AI119363, AI119355, AI119483, U46349, BF868684, AI119439, U46341, AI119444, AW604726, AI119341, BF868687, AI134527, BE705905, AI037205, BF868697, AI119401, U46346, AI119335, AI042542, AI042614, AI119399, BE705904, AI134518, AI119496, AI134538, AW861954, U46345, AI043019, AI042544, AI142139, AI043003, AI042450, AI042984, AI042965, AI042975, AI043029, AI042551, AI119464, AI119488, AB026436, AR080280, AJ279014, AR066494, AX046357, AJ251859, AX030435, AR054110, AR060234, A81671, AR069079, and AR043113.</p>
HNUAP06	1135	886417	1 - 1696	15 - 1710	<p>BG168410, BE884543, BF973855, BE909882, BE387570, BF685949, BE393715, BF684230, BG031113, BF207400, BE544289, BE467457, BF128034, BE784731, BF237614, BE784924, BE670002, AW054906, BF110819, BE271698, AI627220, AW302564, BF739799, BE293121, AI922692, AI433618, BF514525, W28983, AI570245, AA523507, AW967005, AI089550, H96652, BE263254, AA633725, AI298634, N94426,</p>

						H96651, AI865249, AI344133, AA728755, AI926943, AA450270, AA305247, AA505901, BE313501, AA285243, H61772, AA459735, AV737439, W01440, AV653137, AV653693, AA450271, AA045305, N70834, BG106201, AA627963, AA987500, AA550761, AI813562, AA088488, R79371, BG113800, AA461318, AA341822, AA088487, AA045411, R79372, AI832128, BE833024, AA887835, BF128098, W19141, AV647153, AI333041, AF161382, AK027200, and AL357213.
HLYCA31	1136	886496	1 - 961	15 - 975		W68823, AI741023, AI951999, AI693102, AU118098, BE799794, W68731, BF345290, BE396292, AA525005, W85865, BE797466, AW179234, AA430006, AI963637, BG168103, AA758643, AI220400, AV734573, AA620313, BF903403, BE379619, W85949, BF439758, BE794853, AW365684, AW503617, N84944, N86274, BF433230, BF115100, AW962196, AW023421, AI018759, AA347391, H92438, AW502146, AW578460, AA446449, BE547318, AW806872, BE275822, BE275247, AA872594, AV692861, AW189256, BE699570, BF832161, AW501819, AI470443, AA299234, AA953676, BF875912, AW149940, AI955401, BF371244, AW449012, AA027085, AI864168, BF916760, AI457277, N47016, AW779801, AA876791, AA029927, AA987531, AI905099, BE045743, AA463495, AW601776, AI024708, AI344332, AI799995, BE144212, AW361685, BF732644, AW368146, BG002854, AL046436, BE773434, AV687542, BE093351, AK000982, AC005332, AL137380, AC005562, AL035658, AF224669, AC018797, AL135787, and Z54387.
HETTY94	1137	886524	1 - 598	15 - 612		AA831413, AW851103, AW965175, AW965185, AW965197, AW975618, AV719644, D52291, D80258, AV720791, AV720812, D52317, AW964488, AW949641, AV700229, AV720150, D51423, AV718440, AV720028, AW966013, AV720731, AA305578, D59317, D80038, AW949658, AW956434, AW966053, AV720104, AV720203, F13647, AV719913, AW966041, AW960520, AW966534, D59275, AV719188, AV719324, AV718770, D31458, AW966035, D80195, T03116, AW952852, AW966050, C06015, AW960473, AW962395, AV720729, AW958992, AV723097, AW965153, AW964477, AW949646, AV700889, AV718931, C16955, AV725779, AI535665, AV700622, AV720205, C14077, AV719632, AV718487, AW966398, AW959136, AW949645, AW949657, D80302, A82595, AR016808, AX047063, AX047064, AR077702, A84916, I79511, AR008278, and AR071754.
HRGBW44	1138	886559	1 - 1605	15 - 1619		AL534647, BF344568, BF129311, BF345279, AL534648, BE256986, BF033807, BE271438, BE893168, AI798895, BE729186, AW294536, BF447735, AI743014, BE790847, AI676078, BF446330, AU121306, AW135505, AI673498, AI951478, AI499658, AA700750, AW205838, AA884746, AU147154, BF724635, AI218294, AI670692, H38246, H19038, AW135503, T68813, AI420784, H38021, BG122850, AA677312, H19329, AI368106, AW815696, R72320, AI141332, T68794, AW386909, H95507, AI286056, AA282891, AI658673, H70681, BF748978, AI873118, AW968351,



					AA469020, BF724636, AI927444, T89540, AI349307, R72283, T68746, AA468943, AA703705, AA025920, AI055945, AI653764, AI951955, AI885250, BF038080, AA025778, AA988187, AA025779, BF527212, T68728, AW129365, AI351222, BE937617, BF529113, AW606915, AW606914, AW606923, BE161277, BE161278, BE161288, BE171153, BF551034, AI902441, BF057701, AW445104, AI370392, AV728436, AV727238, AV706223, AV704637, AV721044, AV705135, AW411050, AI623736, BE393551, AW411235, AW150511, AW411351, BF568741, AV756703, AK022151, AR072729, S68736, A76337, AR068751, AR068753, Y11254, AF065135, A76335, I92592, A93016, X62773, AL137353, AR072149, AF130075, AK025549, X56530, AK027259, AF044221, and AX006092.
HMTAU01	1139	886593	1 - 1758	15 - 1772	AW976158, BE673515, AI693180, AI761518, BF001248, AI590279, AA747708, AI823733, AW194815, BF035683, BF115168, N57928, AI830431, AA884847, AW614481, AU156134, AA828480, AA011477, AI948477, BG107680, AI243195, AI350100, AA011478, W02411, H94489, AI825469, AA503810, AW002939, BG057989, C02567, AI217219, AW088626, AW772473, AW273902, N72601, Z21113, AW628973, R06281, L44503, AI867856, R06339, AA936601, AW295577, H94575, BE466335, BF916122, BF576472, AW793179, AU137892, AI100691, BF055993, AW851010, AW850927, AI220615, BE157259, BE157255, AK026948, AK026998, AB002347, and AL049843.
HDPVO38	1140	886670	1 - 1832	15 - 1846	AL529008, BE515260, BE883668, AW954489, AW080196, BF334314, AI983315, BE715946, AI623984, BF838797, AI948729, BE550687, BE815265, AW118639, AW510817, AW027261, AI022855, AW015052, BF838798, BE673761, W26314, AI290713, AW453054, AW264049, BF513488, AI870376, AA936381, W27386, W25815, AI419230, AW338467, AW243987, W60767, AI335656, N50770, N50686, BE644989, AA366242, W60706, AA683604, BE901070, AV691292, AI467875, AI748811, AV689063, AI247878, AA533514, AA852777, AV686532, AA669692, BF516170, BE067609, AI400936, AA377771, AV686537, BE219286, AI245377, BF832794, BF949265, BE677754, AI701600, AA009572, AI636601, AA248947, AA573975, N72448, BE166057, AI870365, BE326604, AW070952, BF352156, BE792604, BE618204, BF831062, AA725156, BG104740, BE062973, BE062966, AW582272, AW582273, AW582266, AW856038, AW582277, AI424144, AW856044, AW391286, AW391297, AW856091, AW861042, BF334419, BE149815, AW856186, AW391294, D25625, AW605980, AW605984, BE062987, BE062994, N46789, AA573600, AA861306, BE062969, AW362631, AW605974, BE149710, AW856301, BE062984, AW815346, BE062971, AW291179, BF035605, AA934441, AW391292, AA852778, AW605970, BE150208, BE150206, BE150219, BE150223, AW379898, AK024693, AC002550, and AC003108.

HSDKL35	1141	886684	1 - 696	15 - 710	AI818580, AW165999, BF966995, AI768065, AW772317, AI083757, AI635849, AU136229, AA581468, AI479682, AW243083, BE787530, H29261, AV705689, BE560530, AA563853, T61913, BG024270, AW993660, BE502051, AA7474784, AI7474782, AW058478, AW020551, AI654542, AI741569, AI676141, N51579, N46425, T89040, BE501544, BE763449, AU125248, AU133344, T61976, AA364806, BF984083, AU119372, AW408761, BE892212, AU143116, R17137, AI750509, BF989178, BG151043, AV713621, BG111415, BF982532, AJ245620, AL161627, AJ245619, and AK022549.
HTLJA77	1142	886742	1 - 592	15 - 606	AU131960, AU141869, AU132498, AA985132, BE906767, AU122819, BE148801, BE148805, AW068669, BE148803, AW753657, BF366970, BE148802, AW068681, BG024670, AW407779, AW753658, BE246905, AU128794, BE260937, AF221521, AK022497, and AK023219.
HCFLJ17	1143	886761	1 - 437	15 - 451	AW891957, AW891952, BG117195, BE765355, AW812687, BE769043, AU118209, AA047345, AW363242, AF155096, AK021621, AF135439, and AF151059.
HNGKM7 4	1144	886937	1 - 976	15 - 990	AI344276, and AF015416.
HTTQ27	1145	887007	1 - 1043	15 - 1057	AA522440, AI683658, AA527385, AW068809, AI567764, BF002029, AI962065, H61360, AV722214, BE182294, AI962103, BF917728, BF917779, AW795463, AA811386, AW188595, BF847694, BF733733, BF350083, BE706397, AW268067, AI567702, AA814782, AA504514, AI356470, AI564716, AI524608, AV757598, AW020095, AW151974, AA225339, AI678857, BG176805, H79905, AV758209, AV733470, AI040558, BE877326, AI446536, BF791384, AV715462, AW090429, BF525548, AI683486, AW845239, BE245162, AA420722, AI471909, BF797961, AI916720, AI440263, AA505147, AI811192, AW079432, AW086106, BE908921, AI307557, AI040277, BF904255, BF885000, AI819663, AW059828, AI249436, H89138, R41605, BE906210, BG180013, AI684265, AI366992, BG256880, AI148181, AW118382, AI364500, AW004896, AI174799, AI340627, AW025943, BE672647, AV733410, AI348854, AV721999, AI679472, AA176980, H42557, AV733402, BE906419, AI887775, BG031442, AL120056, BF726231, AW083572, AV659586, AI355147, AV659536, AV646196, AV744830, AI678395, AI349622, R75918, AW071417, AW194232, BG113847, AI334889, AI267379, AI690472, AI918408, AL353935, AK026105, AL137073, AF211175, AL137275, AK000653, AB049892, AI031984, AF116631, AL050024, AL137560, AF130075, AF161699, AK026353, AR050959, AL359615, AL110228, AK024538, AR022283, AY007109, AK026600, AF130059, Y10655, X61049, AF130066, Y10823, E12579, AI157483, AF111845, Y11254, AF287051, AR011880, AF113699, AF125948, AJ012288, U58996, AL080234, AK025113, AR083283, M79462, U72621, AK026647, AF097996, AK027129, X60786, I03321, AF119899, AL050277,

						AK025782, AB029066, AK027057, AK026556, AK026870, AF055917, AK027081, AK027111, S61953, AL137283, AK000212, AB034701, and I17767.
HBCBF11	1146	887008	1 - 719	15 - 733		BE898783, BE898366, BE745623, BE746523, BE898815, BE149918, BE149919, BF748844, BF334229, BF737607, and AF160477.
HFOYG86	1147	887019	1 - 558	15 - 572		AF190500.
HKGCJ92	1148	887027	1 - 1152	15 - 1166		H68654, BF334851, AI040942, H68655, H75859, AC002453, and AC000119.
HFPAB23	1149	887054	1 - 725	15 - 739		AA422028, W79191, AV722613, AB038664, and AB038663.
HWAGL92	1150	887056	1 - 895	15 - 909		AV714629, AV713569, AI829939, AV712849, AV655679, AA651825, W37382, N42191, AI188478, BF436405, AI672667, AI344390, W37646, AA845191, AA835036, AA831436, AA948467, BG231639, AI002523, AW191839, AW974584, AA704742, AA287646, AV733194, BE068227, BE068228, R95793, AV710658, AW191840, T62849, T90287, BE698353, AV712446, BE698342, R11179, R11180, AV717356, AA988042, AA999818, AI189929, AV711812, AI300829, R94937, AW196619, BE245236, T62699, AA886287, AA938191, BE930104, BF086200, AW089814, T82875, BE930088, BE245206, AA986915, BE930112, BE702411, BE702417, AW904277, AW904273, AV715293, BF986915, BE930116, AW904300, N74604, AW452299, BE702415, AA502473, R95749, AW904276, BE930116, AW904300, N74604, AW452299, BE702415, AA502473, AA480612, AA703157, AW857101, AW578857, AW861254, AV703471, AF309653, AF201951, and AB026043.
HADME31	1151	887280	1 - 901	15 - 915		AW974764, AV704568, AV703542, AV742732, AV703266, AV738340, AV727238, AV727468, AI376391, BF512797, AV726319, AV728459, AV653845, AW044644, AV706851, AV705416, AV728652, AV661744, AV705550, AV706734, AV703591, AV728425, AV727929, AV727017, AV706910, AV727052, AV763171, AV651897, AV764039, AA435896, AV729017, AV709932, AV707639, AV704660, AV707171, AV728471, AV656240, AV709356, AV707783, AV706741, AV658362, AV698270, AV709935, AV706425, AV727314, AV759156, AV706683, AV701611, AI306612, AV707794, AV704974, AV727029, AV706989, AV707451, AV762691, AV704116, AV702659, AV702071, AV709025, AV708320, AV729220, AV648619, AA824370, AV728436, AV703505, AV707420, AV728255, AV727103, AV753729, AV702787, AV702102, AV702498, AV729129, AV707948, AV705504, AA626315, AA991266, AV702738, AV650367, AV709407, AV728270, AV760693, AV761002, AV760134, AV726259, AV707088, AV705234, AV763669, AV726505, AV702354, AV702671, AV707589, AI192974, N78952, AV710454, AV706104, AV703012, AV708991, AV729892, AV762632, AV652156, AV701914, AV703417, AI401045, N78829, AV728715, AI077370, AV649758, AA448861, AV703388, AV702954, AV733245, AV727204, AV760359, AV727469, AV710043, AV699156, AV705263, AV703090, AV651503, AV725920, AV753856, AV702280, AV761525, W68342, AV701873, AV729886, AV733867, AV685688, AV706724, AV701586, AV726754, AV712942,

AV702854, AV651694, AV682997, AV708203, AV689597, AV687176, AV701874, AV682038, AV703972, AV702798, AV706223, AV701538, AV726559, AV701728, AV706882, AV763440, AV725088, AV761270, AV705299, AV702673, AV704592, AV726830, AV706992, AV706290, AV658332, AV727822, AV708347, AV709886, AV701496, AA724792, AV733476, AV704330, AV707640, AV708684, AV709929, AV704924, AI015595, AI012111, AW043992, AV735102, AV707268, AV704269, AA862620, AV647654, AV705024, AV728997, AV704590, AV681632, AV702984, AV708720, AV706527, AV702191, AV701183, AV725617, AV702187, AV763670, AV728289, AV734617, AV715252, AV701643, AV686417, AV702817, AV759410, AV729067, AV645778, AV656004, AV725386, AV725321, AV708809, AV682309, AV709273, AV686390, AV704865, AV704955, AV701706, AV705447, AV703515, AV651075, AV726681, AV702427, AV733583, AV702026, AV704954, AV702928, AV711410, AV703761, AV704611, AV705866, AV711705, AV706183, AI201717, AV703232, AV706067, AV726624, AV725031, AV733901, AV761919, AV733222, AV733247, AV707556, AV687342, AV729473, AW005929, AV687909, AV705343, AI498880, AV725497, AV710049, AV705814, AV707942, AV703086, AV726816, AV706889, AV725514, AV701410, AV702869, AV726520, AX020190, AR017907, AX035462, AR062871, AX026824, AX009712, AR062872, AR062873, AX035980, AX026823, I13349, AR088705, A20702, A20700, A43188, A84772, A84775, A84776, A84773, A84774, AR067731, AR067732, A58522, A91750, AX001322, AR093385, AX006816, AK026874, AX011024, A02712, AR096545, A18053, AR073846, A95051, AR080470, AR077142, I06859, AR095492, A23334, A75888, I70384, A18050, A60111, A23633, AR007512, AX047064, AX012337, AR043601, A91965, AR083151, A35537, A35536, A02136, A04664, A02135, A04663, AX003207, E13740, A11245, I60241, E12615, A02710, AX018504, I60242, AR035193, A07700, AX027811, AX027809, A13393, A13392, A92133, AX027813, AX030369, AX030368, AR027100, I66498, I66497, I66496, I28266, I66486, AX023553, AX027812, AX027810, AX023548, AX027816, AX027817, AX027818, AX027814, I21869, AR085082, AR085089, AR085091, A70040, I84554, I84553, AR085079, AR074365, AR085083, AX047062, I08051, AX047063, A10361, I19525, AX009487, AR079804, AX027925, AR091393, AX021518, A25909, A67220, D34614, X68127, AR025207, AR091537, AX008555, Y17188, A85396, I44681, A85477, AX042372, A86792, A44171, AR038855, I66495, I66494, I66487, AB012117, AR070327, A38214, I56772, I95540, M28262, AB037923, AX032758, AR074141, AR066482, I68636, AR035975, AR035977, I66485, AX026821, AR031374, AR031375, AX001325, AX001326, AX001323, AX001324, A85395, A58521, I18371, A60985, AR020969, A60990, A85476, AX020191, A91754, A62298, AR037157, AR008430, AX001082, AX006821, AX028305, AX006825, AX006826, AX006822,
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HEGBA84	1152	887341	1 - 1366	15 - 1380	BE795116, BE271573, BE797521, BG034464, BE868536, BE888005, AI309632, AI871497, AW071945, AW071710, AI833136, AI826142, BE276212, AA779466, BE855429, AI221145, BF111027, BE671595, BE670909, AA983711, BE869191, AI740646, AI660193, AA527485, AI914402, BE312912, AI199300, AW373043, AI095109, AI291372, AA158003, AI051149, F33788, AA827477, AI305816, AA969173, W00496, AA478384, AA872414, AA022847, AA989225, AA402283, AA985546, AA453116, AA584289, AI222123, AA253421, BE818410, F25799, AI560418, AA974945, R89590, AA022736, AW779117, F35728, BG024398, R40072, AA424613, AA971926, T83116, AI350595, AA902803, R16205, T03864, AW238348, H55092, AA449980, AI749019, N72217, AA878050, BE794387, AA252882, BE265090, AI379511, AA158002, AI359401, AL359403, AL022237, T66664, and AA883936.
HWHPM7 4	1153	887540	1 - 1933	15 - 1947	AI591147, AI857959, AA939178, AI743474, AI142832, AI139314, BF889404, AW468680, BF353916, BE713183, AA875940, AA455949, BF353903, AW796506, BF353901, BF353909, AA025073, BF353912, AI242344, AA024977, BE713296, BE713294, AA583903, BE713292, BF353910, AW837836, BF912988, BF353897, AA455950, BF094861, AI214745, BF739348, and AA455558.
HHHEU21	1154	887582	1 - 2773	15 - 2787	AW851581, AW851582, AW575067, AW408124, BF108763, AW402723, AI445224, AW401768, AI445297, BE242910, AW973992, AW970913, AI476165, AW979058, AI719298, AW975210, AA282951, AI653493, AW518030, AI583106, AA535216, AW819125, BE242389, AI439525, AI811687, BF725761, AI609984, AW196288, BE138594, BF868994, AI610012, AA297666, AW504667, AA877992, AW028950, BE501670, BE301068, BG059972, AI609974, T71936, BF991208, BG010084, AW075729, BE206562, AA719433, AI345566, AI244157, AI356440, AI884383, AW163763, AW265393, AA604843, AW301771, AI281561, AW514868, AI053696, AI680547, AW779609, BF818852, AA559241, AP000338, AP000216, AP001760, AC004638, AL358777, AL121891, AC025572, AC024084, AF205588, AL136308, AL117336,

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HKLSC61	1155	887803	1 - 1219	15 - 1233	AV737584, AV718844, AV738934, AL039924, AV701782, AV718018, AV731085, AL045794, AV745723, AV718002, AV745350, AV717989, AV743601, AV717988, AV742995, AV745724, AV701012, AV741012, AW013814, AV718016, AV746102, AV758878, AV700229, AV735727, AV745917, BF294063, BF508972, AV722801, AV701431, AV717956, AV701017, T02921, AV720464, AV701043, AV723927, AV740535, AV719000, AV718681, T24119, AV745488, AV743654, AV719568, T24112,

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HEOMP62	1156	887943	1 - 740	15 - 754	<p>AV763804, AV717615, AV646802, BE242761, AV689578, AV690953, AV684430, BF846122, AR022348, and AL137062.</p>
HLJEB18	1157	888028	1 - 1828	15 - 1842	<p>AI435089, AU139004, AV762851, BF975590, AV711462, AA152277, AI563927, AI382102, AW270023, AW955126, AV762634, AI467846, AV733342, AA033988, AA033989, BG057693, AI620361, AW207480, AI797408, AI418515, AI797697, AA845311, AI566274, AI688099, AI473928, R84727, BF438135, AI078266, N46794, AA613725, AU157852, H78669, H51535, AI680449, AI659378, AI458846, AV761643, AA037711, H78752, AI934787, AI708145, AI287836, AI248458, BE764440, R93260, R85684, AA809196, R23205, AA938447, W03706, H51534, AI682898, AA312249, AA150443, AA834013, AI682633, AA355905, AI719658, AA353723, AA044418, R23204, R93168, AW388102, AW388105, AA360884, N40936, AA894661, AI718154, N73946, BE764386, BF857694, AI637522, BF830177, AK002158, AC006479, and AL080068.</p>
HAMFN18	1158	888042	1 - 446	15 - 460	<p>AU125485, BE294650, BE883619, BE279451, BE781316, BE018534, and AK022680.</p>
HWAEU20	1159	888047	1 - 1910	15 - 1924	<p>AW864388, BF680896, BE777544, BE220848, AI982565, BE967606, BE042914,</p>



AL215617, AA553540, RI5953, T16890, Z44242, BF949835, AW864512, T74054, AL118801, H12178, F07097, R18709, Z45033, F12370, Z40201, T87220, F09990, H11649, R38421, F07708, R25057, R55771, F08333, R45396, F04558, R41971, R12850, AI863613, AW051331, F03377, Z40771, AA188521, AI699582, F04949, H97413, AI784055, AW510885, AW136105, AI697280, AW467042, AL042382, AL046385, AI690813, AL119399, AW080157, BF724894, AI364167, AL119511, AL079794, AW265004, AI288328, BE907663, AI559752, AL514511, AW972273, BF345598, AL514409, BF968666, BF997967, AI689096, AW827289, AI925164, BF868489, BE876976, AI683270, AI922597, AI342023, AI049669, AL513977, AI950729, AW198090, AI598017, BE538997, BG105381, AI359787, AL514359, AW194014, AI432532, AW087837, AI824357, AI860787, AL515413, N25033, AI370623, AW972279, BG033608, AI952306, AL513729, AI581139, AV750565, AI421662, AI568061, AI580027, BG167830, BE964206, AL513913, AI933574, AL514493, AI524179, AI610671, AI925281, AI499963, BE780955, AI628214, AL514721, AI341690, AI224373, AI538008, AL514015, AI917428, AI887163, AL515171, AI932794, BE729304, AI872154, AI267454, AI677646, BF811802, AI635528, AV682250, AI638644, AW084896, AI890907, AL514791, AW105429, AW081648, AI538850, BG111199, AI514357, AI583670, AI345415, BE965732, AW089844, BG029709, BF970652, AW020397, AW268221, AI446704, AW263796, AL514455, AW301974, AI049923, AL513693, AI357902, AL513863, AV682403, AI651609, AI612107, AI499570, AL109779, Y11587, U77594, X68249, AF267849, AL161964, AK025113, AK024992, AF047716, A77033, A77035, AL133084, AJ005870, AK000476, AK026038, X60769, AF232009, AL050366, AK000083, A32826, A30330, A32827, A30331, AL162002, AF155656, AF265236, U89906, AL359583, E12747, AF119899, AL122110, AF130105, AF002672, AK000653, X63162, AP001624, E12579, AK027204, AL117460, AK025258, AR050959, AK000718, AL389983, AK025099, AK025092, X84990, AB047627, AF102578, L10353, AL133559, X68560, X66862, AL133049, X63410, AP001746, AL050149, U62966, AF161406, U83980, AK024747, AL133072, AL117432, AB031064, AR083264, AK026630, AL137533, U79523, E12806, AF183393, AK025435, AL133608, AR081734, AF260436, AL133088, X99971, S71381, AF116688, AK027116, AF150103, A21625, AL117435, A60092, A60094, AF031572, AK026633, AF119336, AL117587, AL080154, I80062, AB007812, AF208850, AJ8777, X81464, AC002471, Z35309, AR068753, AC005374, A91160, AK026570, AL080150, X93328, X67813, AF027180, S65585, L10376, AF000167, E12580, AL137271, AK026885, AL122100, AB044560, AK027260, AJ001838, AR068751, A65340, AB026995, AX047644, AL117626, AF143723, AF171061, AF141289, E01356, AR072729, AF103804, AK024855, AL137548, E08517, AF161517, AF090934, Y11254, AF065135, A76337, AR072149, A76335, E02349,				
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HDPBG11 HHFJ187	1160	888121	1 - 722	15 - 736	AJ242859, and AC007395.
	1161	888142	1 - 1361	15 - 1375	AI733116, AW246731, BE265237, AW269806, A1792758, AW151234, AV300887, AI732978, AI858701, AA829284, AI683053, AI635015, AI299543, AI299509, AW472814, R59291, AW770774, AA334511, AI287783, R59292, AA988639, AV754636, BE769047, and AA908718.
HWLEQ41	1162	888156	1 - 1193	15 - 1207	BF526942, BF036429, BF034330, BF035689, BG117306, BE906856, BE871642, X84712, BE958344, AW955111, BE729985, AV703538, BE271782, BE156569, BE568321, BF826293, BG250080, BF977502, AW579884, BF698225, BF512422, BF695706, AA587630, AV764128, AA448786, BF695587, BE878646, BE621432, H02682, H29948, AA186733, BF909586, AW405966, R22543, BE621946, BF813006, BF742389, AA1827923, AW392393, AA311766, BF916201, BF742334, R70413, AV763358, AA477230, AW794624, AW674083, AW972521, AV719783, AV718844, AV720464, AV720731, AV742667, AV718692, D80219, AV724520, D80253, AV722801, AV742001, D80227, AW973447, D59275, D80240, AV701017, AV718489, D80210, AV701043, AV701248, D51423, AV700229, AV743601, AV699447, D80134, D59619, AV719000, AV744934, AV745080, D80391, AV721784, AV742720, AV701125, AV699927, D80193, AV700889, AV741012, AV718681, AV701431, AV701261, AV723927, AV701166, AV701154, AV745724, AV745831, AV745723, D80196, D51250, AV720812, AV701012, AV744768, AV701118, AV745369, AV701163, C14227, AV720607, AV744773, D80043, AV701443, AV740535, D59787, AV701428, D80949, D59927, AV701332, AV737584, AV720034, AV744771, AV720220, D80366, AV720203, AV744770, AV741888, AV701055, D80168, AV745488, AW798114, AV699479, AV701145, AV746385, AV701121, T11051, AV746335, AV745366, D50995, D81026, C14014, AV719822, AV723097, AV701149, AV701422, C75259, D80045, AV719568, AV701227, AV745392, AV746162, AV701344, AV699746, AV701231, AV701004, AV699669, AV701013, AV720211, AV738934, D59889, AV701021, AV720150, AV745853, AV719913, AV701357, AV743654, AV745621, AV745847, AV699550, AV699682, AV719324, D80022, AV745920, AV701151, AV742996, AV701419, D80038, AV745388, AV701335, AV701330, AV701130, D80195, AA579044, AV700895, AV745583, AW673871, AV742671, AV745490, D58283, AV718858, AV701415, D81030, AV745197, BE785222, AV743008, D80188, AA236039, AW959570, D51799, AV745190, AV718770, F13647, AV721386, D80378, AV699321, AV718800, T03269, AV719468, AW978634, AV701224, AW949642, AI557751, AV701249, AL039150, AL038821, AL039085, AL043445, AV700159, AW965158, T23659, AV745411, AW949633, AW949641, D80212, AL043441, AW949632, AL039156, AV735727, AL039564, AL039538, AL039108,

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HTOIB37	1163				

HTGBM16	1164	888244	1 - 1209	15 - 1223	BE794683, AI093703, AU122387, T60704, AW317078, W72667, BE315108, AK022405, AB046054, and AL137745. AL532435, BF982204, AW954882, AU129437, AU128567, AV762483, BG163621, AI472243, BF029298, BF928970, BF92897, BF382636, AA224260, AV763396, AV685015, AA811920, R83178, AV690415, BF247157, T78371, BF880776, AI589113, BF349100, AW806614, R92053, BF738124, H95413, BE839386, BE140130, AA317066, BF738125, AV734236, BF755193, AU131764, AV690306, AV691438, BE140120, BE257950, BE257566, BE708498, BE816729, BE816754, N77671, AW750960, AU150832, AI874176, AW854054, AL120391, AW977902, AW136392, AW978453, AA814901, BF831780, AI821170, AA598542, AI821742, AI732160, AI792085, AA830422, AA173479, BG116602, AA173478, AA179542, AA225175, AF098786, AF263468, AF165517, AK022929, AF165514, AL133216, AL133217, AF162767, AF162760, AF162763, AF162759, AF162762, AF162764, AL022395, AL353777, AC018698, AC005670, AL049835, AL133480, Z68226, AC005905, AY007256, AF080618, AL136168, Z97054, AL049840, AC018719, AC010527, AL161725, Z83849, AP000152, AL022336, AL023807, AC024168, AP001728, AC008474, D11117, AC005574, AC004985, AF162766, AC005621, AL356115, AL158198, AP001746, AC005911, AC005006, AC007482, AJ271736, AL132777, Y09980, AL118520, AC009509, AC010485, AC022392, U73634, AC005189, and AL359457. AW274757, BF979499, BE875104, AV728303, BF671975, AV727326, AW631495, BF983857, BF248008, BF115795, BF212520, AV717938, BF571136, AV728044, AA976644, BF679046, BF477635, AI907366, BF570689, AA903720, AW972361, AA524665, BE220972, AI984786, BF979139, AI692731, BF213370, AI907373, BE439966, AI268254, AI907368, H08416, BF700421, BF541919, AV705494, AW978976, AI332994, BF540780, BF247753, AI907374, AA826200, AA701660, AI656122, AI657191, BE763093, AA936326, BF572170, BF131794, BF195177, N79377, AV715209, AI950823, BF093269, N88408, BF439990, BE159589, AA772723, N86348, AA399432, BF575806, BF984268, AW206085, AI268253, AI421859, BF680498, AI916469, BF344634, AI420669, BF670000, AF126020, AC004839, and X78684. AI979286, AA382595, AI688554, AW169944, and AF133424. AW957192, AL518866, AL537723, AL538417, AL537955, AL537724, AL518867, BE733072, BF569986, AL537433, BE300120, AI885820, BE734663, BE260057, AA633960, AI926998, AI802345, AA927508, AW149824, BF527901, BF314441, BE728596, BE730571, BE901579, BF530015, BE275381, BE312831, BF183087, BF525584, BE728483, AA601049, AI891105, BE274785, BG117812, BF569646, BE883284, BE908156, BG117992, BF314674, BE906311, BF312713, BE262443, AI827023, BE259921, BF311148, BF968011, BF310653, BE890420, BE312408,
HOUGB05	1165	888279	1 - 1235	15 - 1249	
HTELC21	1166	888321	1 - 441	15 - 455	
HTPGV36	1167	888376	1 - 2782	15 - 2796	

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HFTDC58	1168	888528	1 - 666	
HMUAG3 0	1169	888542	1 - 1552	

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HCBME31	1170	888903	1 - 1471	15 - 1485	AW385618, AW385612, AW385608, AI394057, AA031354, AW293177, AA031353, AA369669, AV734931, AI174266, AW627818, BF900467, AW403498, AW376414, AA157797, AW752757, AW376997, AW376921, AK024426, AF114491, AK024454, AC004262, and AC022149.
HPMGA51	1171	888905	1 - 1261	15 - 1275	AI540210, AW173208, AW006589, AV707182, AW104434, BE503183, AI148598, AI656207, AI350808, BE503507, AW297121, AW237250, AA918535, BF057772, AA918200, AW235193, AW083055, AI357673, BE503001, AI350807, AI200477, AI991567, AA953496, AI825590, AA738163, AW962712, NS9298, AA369466, H71562, AA369367, AA369366, H71045, T48746, and H71557.
HDQDC13	1172	888998	1 - 763	15 - 777	AL519890, AL530619, AL519785, BE274414, BF685760, BF314544, AU141817, BF315915, BF206204, BG110149, BF315603, BF316650, BF314286, BE260773, BF206777, BE546840, BE273780, BE872127, BE903265, BE894906, AI372836, BF330511, R88656, BF737817, BF056687, BF345148, BF316669, BF982475, BE938228, BF510150, BF738723, BF370381, AW379072, BE778410, AK023930, and AK000679.
HLHFX80	1173	889324	1 - 1396	15 - 1410	BE550593, AL044489, BF673743, AW965008, AU118745, AU158859, AV763174, AV759356, AV759711, AV760364, AV762900, AV762902, AV761309, AV759686, AV762779, AV759683, AV762001, AV759684, AW085751, AW963623, AI076616, AA126635, BF901147, AA481760, AL135698, BG110480, AW975169, AL534685, AV699423, BF346320, AV705998, BF701072, BF902636, BE675240, AV760760, BE300645, AW080062, AI952885, BE908602, AL048969, AW510513, AI745681, AI694178, AI679294, AW169183, AI679871, AA077232, BF673854, BG028665, BF732429, BE395467, AL041895, AW008212, AI204309, AA736713, AU118837, AI310464, BF516067, AL527073, AW600804, AA572983, AW970987, BE156097, AV762838, AW169057, AV707404, AV700498, BE206133, AA568303, W93858, AI457152, BF673911, AU130725, AA524604, AA113272, AV700654, BF589864, BE796439, AI871940, AA568311, AU153921, AL044458, AW470071, AW878019, AU119141, AL534817, AA189154, AA601230, BF844977, AV733139, AV762220, BG258140, AV699816, AW452415, BF509088, BF512453, AW514598, AI337011, AI650992, AA910985, AU119532, AA665449, AA493245, AA064983, AW965848, AI925321, AU119400, AW008089, AA788904, BE300070, AA568314, AA757426, BF978244, AW576374, AA908857, AA679794, AI732698, AI742282, BF814446,

AV722075, BE147251, AA838140, F28204, AA243452, AW274830, BE062053, AA492584, AC000378, AC004166, AC004867, AC005484, AC005098, AC005291, AC006121, AL035422, AC008762, AC008745, U78027, AC005231, Z82215, AL118520, AC009247, AC003962, AC011534, AC004491, AC006208, AC005943, AC011453, AL109743, AL136179, AJ295844, AC027319, AC009464, AC011455, Z85987, AL035420, AL109797, AC005529, AC008892, AC005399, AL109825, AC004659, AC004605, AC009314, AL035086, AL162430, AC008733, AC007041, AC007283, AC005225, AC011495, AC005071, AL049759, AL117377, AC009086, AC010328, AC018720, AL121601, Z86090, Z83844, AC005488, AL034420, AP001728, AC009194, AC015651, AC010150, AL157838, AP001753, AC002316, AC020898, AC005736, AC010326, AC020552, AC005829, AC007052, AC011479, AL050349, AC006014, AC016637, AL050328, AF064861, AL391259, AC007546, AC007842, AL133448, AC003108, AC005971, AC010422, AC004887, AL121751, AC004824, AC004209, Z98946, AL354864, AL096791, AD000092, AC004878, AL035089, AL353653, AF152365, AF001549, AC009244, AL136418, AC005921, AL050335, AL022721, AL009181, AF165926, AL139100, AC004876, AL033529, AC010519, AC008752, AL031670, AL133551, AL353804, AX039602, Z93017, AF111168, AC005696, AL163279, AF312915, AC022517, Z83840, AF001552, AC005046, AC008403, AJ251973, AC008736, AL034379, AL022311, AC025588, AC002470, AL008582, AC007161, AL031311, AC005412, AB014077, AC007899, AC006483, AC005527, AC006111, AC008764, AC005913, AC004150, U82828, AC008392, AL023575, AC007954, AC011811, AC011475, AC002347, AL133545, AC010789, AC010329, AL163201, AL080243, AC007685, Z98742, AL356354, AC011484, AL109935, U52111, AC007371, AF235097, AL022316, AL391833, AC006064, AC011450, AC005730, AC007956, AL034405, AC004000, AC005004, AC002394, AC005537, AC025435, AP001631, Z99716, AL365505, U47924, AC010618, AC007151, AL163300, Z93015, AL034548, AC005839, AL159977, AL034380, AC024561, U91323, AC011444, AC000025, AC005697, Z93244, AL049569, AC005914, AC007226, AP001712, AC002126, AL356299, AC011510, AC004699, AL034417, AC005082, AL031680, AC008569, AC005940, AC007055, AL132653, AL008718, AL031286, AC005725, AF168787, AC009516, AL355499, AP001711, AF243527, AL021707, AC005037, AL136137, AL031228, AL132775, AC005236, AF069291, AL078477, AC011490, AC004955, AL138787, AC007536, AL035249, AL445669, AP000692, AL109952, AP000011, L78833, AL353802, AC003101, AC004846, AC003013, AL133288, AL356801, AC008598, AC008267, AL078461, AC006449, AL109963, U95739, AC005522, AC007383, AF149773, AL117381, AL034429, AF124523, AC005284, Z98200, AP000553, and Z38485.					
HSI/KC45	1174	889371	1 - 1798	15 - 1812	AL521519, AL521520, BE856341, BE382416, AW593251, BG118882, BF446027,



AI147915, AA447940, AI049628, AI765714, BE464518, AI073853, AI199948, BF087492, BF436143, AA384314, AW192166, BF923368, AI572772, AI420998, BF592837, BF591215, BF950895, AV743962, AV741327, AI633125, AI802542, AI815232, BF812960, AW051258, BF970652, AI677796, AI524671, BF812938, AI619502, AW026882, AI611738, AI889376, AI045500, AI433157, AI702073, BF812961, AI571909, AI921248, AI632408, AI564719, AI587114, AI576777, BE964495, BE047852, BG249582, AW169671, AI926790, BG058398, AV760409, AI514579, AI119863, AI476478, BE047737, BF812426, AV729649, AI890833, AI702068, AI886753, AI269862, AI468872, AI690426, AV735353, AI439745, BF792961, BG027280, AI922901, AW020561, BE910373, AI047041, AI637584, AI933589, AI696612, AW073865, AI620284, BE965121, AW131282, AW193911, AI934011, AI284131, AW073270, BF526020, AI690585, BG253412, AI828682, AI537024, AI432656, BF856017, AW104724, AI269205, AW088903, AI431975, AI569583, AI624206, BF814412, AI281772, AI220003, AV734916, BF344691, BG255333, AW081036, AW150453, BG029667, AI559296, BG181066, AW104827, AI514357, BF343568, AI306613, AI862144, AW081255, AI284509, AW190042, AW088134, AI567940, AW132056, BG036846, AI862139, AI612913, BF339322, AI281762, AI634737, AI567935, AI432085, AI513807, AW080327, AI280521, AI036631, AI280637, AW090071, AI499285, BG179993, AI624548, AI457369, AI247293, AI819326, AI783504, AI567846, AI955917, AI636588, AW673679, AI648509, AI625079, BF868489, AI679321, AW129659, AI670009, AI538085, AI271786, AI687127, AI287326, AW078529, BF725868, AI687362, AI934259, AI038645, AA806720, BF727091, AW149311, BG031815, AI610690, AW075667, BF924869, AI539771, AI446373, AW148408, AW087160, AI610307, AI536638, N33175, AI435641, AI254731, AV757455, AI445025, AI633297, BG180996, AW198090, AA835801, AI537303, AW148536, AI513577, AW193530, AI627988, AI871697, AI591075, AV652443, AI682971, AI514701, AI469532, AV682345, AI799273, AW235482, AI866801, AI687728, AW238730, AI648454, AI514799, AI583065, AI514731, AI567128, AI590120, AI671679, AW148363, BF724198, BF969494, AI440239, AI521560, AW087207, AI635461, AI679174, AI514867, BG108288, AI874261, AI432969, AI609589, AV757622, AI654276, AI570009, AI513937, AW002362, AI590227, AW166903, AW827289, AI284084, BF856052, AI697321, AI631273, AI610799, AI538259, AW167228, AI702406, AI570909, BE789764, BF816042, AI863241, AI036274, AW118518, AI445432, AI174394, BG257535, AW086113, AI286256, AI634751, AI250293, AF093673, AP001672, I89947, AK026532, I48978, AF119909, A08916, AI162083, AF183393, A08913, AK025339, AI049314, AF314091, AF090903, AK024538, AK026744, AI353940, I89931, I48979, AI389982, AR087170, AK026542, Z82022, AI050149, AI050138, A65341, AF130105, AF116639,

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H0GBN93	1175	889792	1 - 633	15 - 647	

HTPHE46	1176	889999	1 - 1993	15 - 2007	AW963999, BE785673, AW961199, BF037119, BF036638, BG030580, BF033837, BF036149, AW851261, AW377122, AW377125, BG166746, BF665294, BG030507, BF699078, AW850925, AW752845, BF085620, AA405940, BF667082, AW851052, BG121547, AW752835, BF700054, BF667787, AV692286, A1924880, AW752844, BF698625, BF244588, BF698345, BE042841, BE739116, AW850982, BF695890, AW752868, BF130660, AW630835, BF514638, BF697211, BE612726, AW851056, A1621153, N78154, A1538061, AW938593, AW938596, BE817020, AV660141, BE093579, BF697582, BE868472, BF241480, R66206, AA403241, AA313513, R58698, AA307010, H42631, BF697524, BE089877, BF334107, BF668201, BF154792, BF699154, BF695458, R64487, BE958619, BF665913, BF700919, BF699860, BF697149, R94825, BF665805, R92884, BF701466, AA377208, BF813323, BE613316, T73957, BF666583, A1800939, N78160, BF701778, A1800807, AA095925, BF750358, BE867141, BF750357, T73948, BE148612, BF667321, N88292, R68027, AA403153, AV660091, AW440250, BE739453, AR028555, AF257182, AF061443, AX016195, AX016184, and AR028556.
HTXQU08	1177	890638	1 - 1104	15 - 1118	BG104817, BE169142, BF368869, BE146728, AA368799, BF885441, BE151289, BE146707, AA382342, BE146730, BE265138, BE151628, AA320555, A1674193, BE141731, BE151627, AA188505, A190860, and AL162742.
HE8MU78	1178	890664	1 - 1303	15 - 1317	AW959797, AV728827, AV727781, A1743870, A1802922, A1761918, AA722178, A1797752, AA298366, AW117481, AA452119, W22117, AA716035, AA702392, AA296915, AA298194, AA716067, H53444, AA298305, AA298376, AA298395, AA298310, AA298328, AA757350, AA298323, AA298318, AA298308, AA298392, AA298301, AA297317, A1193267, AA298315, H92024, AA298384, AA298317, AA298382, AA298367, AA298309, AA298329, AA298372, AA298300, AA298298, AA758427, AA298377, AA298390, AA298375, AA298332, AA298357, AA298385, A1183922, AA298327, H53445, AA298331, AA704392, AA298185, AA298306, AA298389, AA298371, A1572265, AA298187, AA298378, AA702386, and AF225421.
HTNB117	1179	890703	1 - 868	15 - 882	AA448535, AW505127, AA447553, H83357, AW958976, AW854039, AW500945, AW501155, AW368595, AW368558, AW368566, AA385034, BE867373, AW368567, AW806465, AW505139, H83705, A1473783, A1696010, AW731913, AU146942, AA494449, and AW969437.
HTTJZ84	1180	890714	1 - 1548	15 - 1562	A1769914, AW963415, BE464487, A1972156, AV694791, AW662445, BE891653, BE275818, BG026631, BE904632, AU147968, BE740866, BE274434, A1042283, BE893504, AW192475, AA639414, A1074186, AA232646, BG057227, BE145317, BE273426, AA081127, AA372241, AA081152, AA232791, AA026479, D31133, W63556, BG104264, BF840127, AW016704, AU134361, BE728564, A1873962, BE727208, AA372249, AU122376, A1341901, BG112624, BF930311, BF915954, BF748455,

					AW581387, AA026251, AF238083, AK022402, AK023393, AF266756, AJ245504, AF200328, and AB046025.
HL YBD96	1181	890826	1 - 1577	15 - 1591	AW850656, AW850376, AI090920, AW295791, AI655538, AI656746, AW850351, AR092425, and AR075038.
HDPP168	1182	891362	1 - 1983	15 - 1997	AV726718, BG105176, AW665624, AI742860, AI684488, AI743865, BE502795, BF448409, AV726997, AV727521, BG110230, AW139201, AI830855, BE391653, AI951736, BF690950, BF667359, AW001024, AA506326, AA534813, BF057313, AW104461, BF309133, AI027515, AI832138, AA632305, AI075975, AW264382, AI765298, AI916615, BE467181, AW629785, AW339330, AW770652, AW271665, BF109563, BE045378, BF437560, AI498930, BF238687, AI674704, AI744434, AW445202, AA461020, AI375366, BE328796, N32858, AI762768, BE564498, AI493805, AI769731, BF195532, BF195878, AI221557, BF055003, AA704860, AW613354, AW958391, AA805922, AW403867, AW293887, AW663715, BF063045, AW297421, AI338107, BF432885, W63796, AA282146, AI332911, AA236412, AI589139, AI358154, AI307740, AA574239, AI185807, AI206065, AA152264, AI750848, AA055977, AI935745, BF356407, AW297963, AW263849, BF440006, BE960843, AA460672, AW007798, AI376438, AI288093, AW339790, AW341374, AI697395, AI127710, AW339830, BF666768, AW815062, AW779605, BE551655, AI864464, BF591989, AI373051, AI311011, AI197796, AA150096, AA460492, AA421377, AA150024, AW815043, AW023782, AA503235, AI864520, N26428, AI302362, AI671309, N25870, AI915397, AI129146, AV725905, AI129875, AA810074, AA969088, AI701833, AI221935, BE168418, AI200556, AA045920, AA814475, AA243545, AI335777, BF339291, AA773228, AI637509, AA056005, AA379786, AA281199, AA236413, AA704148, AA742998, AW472984, AA989594, AA757284, AI699051, AA150202, AA721438, AI424201, AA311834, AA493762, AI758112, BF368400, AA304273, AI146404, AA707047, AI092370, AI640858, H99323, AA378447, AI424771, T79005, AW592197, BF335057, AA810050, BE873111, AA372918, AA016198, N46657, BF368398, AI500105, AI671397, AI194062, AI536605, AI869868, AW958235, AV727014, BF348954, AW401532, AW207149, N34928, AW779295, AI660740, H87391, AI014388, AW135393, AI479036, AI750849, AW206947, AW013928, AI783906, AI762592, R83259, AI394277, AW467087, BE855414, BE676577, AI057048, AI250837, BF000307, AI128464, AA256653, AI394359, AI804373, AI081234, AW512867, AI937653, AA568630, AA367807, AA745908, AI337001, AA622150, AI659163, T79006, BF063130, AI684792, AA809776, AI365457, AI383806, AW589938, AI696113, AI559832, AW471221, AI440535, AI475511, BE675237, BE675088, AI475700, BE675567, AI911779, AA907043, AI660130, AW082357, AW303616, BE674876, BE676264, AI343488, AI804085, BE646477, AA765143, AI380364, AW135920,

HTTUT40	1183	891742	1 - 870	15 - 884	AI475521, AI480278, AI004283, BE675583, AA639734, BF970623, AA954051, AA046156, AI220459, AI914648, AF183409, AK026163, AF220188, AK027162, M23568, AF146793, AA461062, AA281742, AA468355, and AA714044.
					BE786389, AI524590, BE744597, BE796190, AI529705, BF132076, BF794982, AU126873, BE740216, BE545432, BE544763, BE563799, BF343738, AA437204, BE909841, AA143152, AA132651, AW327686, BE379142, BE537412, AL519840, AL519839, AW958434, AW367012, BG024936, AA296971, AA161263, AW352289, H18393, AA354603, AI268931, AW352287, AW352294, AA218538, BG117991, BF541758, Z45742, AA298844, BE907873, BE762990, BE142815, AV712240, AA335199, W24000, W22670, AL043167, AA604374, W30793, AA969047, AK001341, AF201931, and AL137878.
HEIDR50	1184	891862	1 - 809	15 - 823	BE888920, BE613469, BF691244, BF541972, R61661, BF761565, BF132694, AA449366, H17381, BF692642, AW297863, BF791021, AA361462, T82691, AW965438, AA576960, W38607, AA361472, R82425, AW936501, AA332605, R14278, AW370234, BE693257, AL032821, and AB048916.
HSLFZ79	1185	892016	1 - 1687	15 - 1701	AR025382.
HDQGN46	1186	892018	1 - 3784	15 - 3798	AI393580, BE041810, AI867153, AI307279, BE568549, AX047952, AX047936, and AX047940.
HDPRH64	1187	892038	1 - 1383	15 - 1397	BE622439, BE275138, BE727237, BE743318, BE274232, BE275932, N32639, W79004, BE938428, AW752949, BF894173, N23973, BF996380, W39098, H84042, BF995847, BG001597, T80404, N31874, AW382936, BF091921, AI866294, BF991954, N26363, BF092044, BF991949, AW366391, BF155169, AW352245, BF858935, AA019178, BF997445, BG002361, BF989649, BF997813, BF995844, N44252, AI669594, N46160, AI628090, W04589, AF171669, Y18483, AL365345, AF135830, AF135829, AL365344, AF170106, AF171668, Y19022, AB024400, AL117258, AF135828, AL365343, AL365342, and AL365347.
HPIAN49	1188	892164	1 - 1586	15 - 1600	T20230, and AC025152.
HDPVB49	1189	892654	1 - 1363	15 - 1377	AV705593, AI734250, AI668650, BF336859, W19504, AA954742, AA587982, AI269111, N89910, D81850, AB020687, AB026256, and AL117465.
HPICP79	1190	892826	1 - 1308	15 - 1322	BE963718, AU140229, BF195683, W55896, W55856, AI033991, AI581098, AW068238, R76895, R86326, AW362820, BE242802, BF375214, R77060, AW814923, AI028412, BE728400, AI220844, AA862718, AW814889, AW515266, AA728770, AA040365, BE779429, AA040364, BE839008, AW814621, T94138, D42044, AL035413, and AI219616.
HHEVK59	1191	893348	1 - 1540	15 - 1554	AV718192, BG028035, BG112695, AI279076, BE504911, BE855877, BE221748, AI638325, AI126701, AI922112, AW204097, BF002330, BF111180, BF340921, AI521204, AI333218, AI522135, AW051594, AI765779, AI354466, AA278236,

HMKAK6 1	1192	893374	1 - 1254	15 - 1268	BG166373, AW967019, AA278694, BE550923, AW379580, AI761991, AW379553, AI434405, AA287839, BF344553, AI220818, AW362390, AW379559, BF433267, H97546, AW119222, AW014382, AA287838, AW272655, AA476472, AI473899, AI992102, AW663703, AW753675, AW131628, AW954448, BE219754, W17375, AW379546, AI189155, AW379597, BF223718, H81777, AI521375, AA135802, AA262902, AW515886, AA253261, AI367269, AW753672, N90146, AI863944, AA135801, AW379591, AA112662, AI123840, AA404601, AI290339, N26091, AA487696, AI393797, AI036454, AA481864, AA806571, H44301, AW753674, R93281, AA487480, AW888890, R59717, AI632397, BF339653, H02134, BE671819, AI263490, BF197195, BE693264, AA253137, BE693230, BE062260, T35817, AA668517, BE693270, BE693263, AI370744, BE693265, BG114046, AA665919, BE693277, AA476473, BE693251, BF092302, BE693273, AW193569, R31141, AA328070, BE693240, AA112661, R33293, R86017, BE693269, BF341883, BE693234, Z40988, R93187, R09939, BG120190, BE693268, AV748001, BE693245, AW731964, BF330643, BF433924, AI701567, BE693239, AI290702, BF154953, AA330025, AW243711, AW362380, AC016656, AC016652, and AC010352.
					AL522852, AL515470, AL526281, AL522851, AU132828, BF792241, BG114903, BE793764, BE614630, BF344242, BF797460, BF310803, BE889526, BG259950, BE781334, BE514473, BE789972, AL526241, BF448706, BF306412, BE279992, BG116807, BF344363, BE298122, AW249532, AI813508, AI823915, AA533883, AI342400, BG179516, BE265417, N37069, BG107926, AU154282, BF669342, AW245570, AA121653, AA568252, AA532823, AW473726, AW250296, BF060688, AI150772, BF700779, AI677789, AA947519, AI688701, N27680, AI037990, AI143732, AI016445, AA639295, AI083663, AA621146, AI565693, AA132974, N20843, AA308334, AA831223, AA918001, AW245927, BF678437, AI368438, AA057158, AA325066, AI078660, N46383, BE973562, N75480, F36772, AA064652, AA602087, F28422, AW083290, W46636, AI673324, AA564277, AA056990, AA602067, AI685603, AA195380, BE539830, F32570, AA064694, AA862954, N28455, F20800, AI688690, AA502303, BF246734, BF437450, R72258, T82852, BE613763, AA373896, AA741294, AV738024, AA635261, W05290, AW611802, AW083609, AI056552, BE833238, AA627771, AI032312, AI480060, W46683, AA057865, AI953435, N30051, BF593218, AA133055, BG112781, H25271, AI423931, AI265981, BF379808, AA421701, AA708457, AA670135, AA303384, AA056931, T77227, AW840938, BG114622, AW058031, AW360851, AW753069, AW373878, T99440, AK001659, AF257466, AB041263, AL137073, and AF161387.
HWADM6 5	1193	893492	1 - 795	15 - 809	BE397210, BE857970, AI684361, AW027022, AI654407, AA402142, AW575558, AI924373, AI452970, AI972041, AI813282, AI802088, AA810774, AW373797,

					<p>AI246047, AI863646, AW779318, AI092347, AA883596, AA262757, AI088273, BF507634, AW575622, AW406417, AA383827, AA384488, AW966474, AW404076, R91640, AA491421, BF826475, AA453656, BF901027, AA588769, AA490088, AW296358, BE676193, AW975780, T57786, BF057554, and AL137623.</p>
HLQFF81	1194	893535	1 - 716	15 - 730	BF819760, AF193807, and AF193808.
HDPG80	1195	893789	1 - 880	15 - 894	<p>AL525339, AL533433, AL523656, AL522465, AL526455, BE562900, BE735184, BF337632, AL526176, AL520874, BE797269, AL530093, BF342490, AL530380, BF344330, BF309156, BE735989, BE397771, BG252820, BF032466, BG257985, BG104721, BE893629, BF206486, BF796886, BE256735, BF311298, BE261742, BE258582, BE264109, BE785480, AL530864, BE206819, BE384894, BE276164, BE397750, BE392626, BF207123, BF312350, AA232171, AW959763, BE048057, BF725110, AL525296, AL522464, AA296468, AL526414, AL526331, BE926389, AL533389, AA352389, N55872, AA301453, BF314033, AL521417, BE924996, AL521416, BE937625, BF794720, BF315809, H01676, AA292746, AA496400, AA427485, AA477724, AA610640, BE242228, AL524355, AL524354, BE504399, BF036463, AI554612, and AC004150.</p>
HOELW53	1196	893798	1 - 1935	15 - 1949	<p>AL514858, AL526558, AL526504, AL527976, BE747130, AL527977, BG025328, BF981832, BG251098, BE893035, BG120208, BF037986, AA127629, BG116095, AV756005, BF337754, BE903609, AW957722, BF000345, BE907226, BE222397, AA121531, AW327517, AA121524, AA127621, BF528462, BG231815, AI310156, AI885185, BF382067, AI653011, AI816920, BF726556, BF196680, BF059268, AI917727, BF665058, AI492163, AA058429, AI703500, N94375, AW952799, AL042115, AA522819, AI393275, AI633828, AA447649, AI129541, AI569654, BF058861, BF035607, AI554669, AI199561, BE466167, BE467836, AI597911, BG231643, AI146460, AI769369, AI955872, AI651857, AI127476, AL514857, AV717137, HI5332, AI950367, AW468274, AA101965, AI422804, AI342065, AI422130, BF382605, AA780184, AI871310, AI637864, AA694161, W69776, AA290675, BF541725, AI635393, N36538, AW016914, AW006534, AI990389, BF038419, W94341, AI289096, BF437625, AI634575, AA449346, AL047918, AI289186, AW352206, AI631814, T33895, AI336104, AI424274, AI052494, AI128384, AA722755, AA447041, AA602552, BF813945, AI422522, AI040930, AI206504, AW590779, W69815, AW327573, N92885, AI801837, BE903562, BF092265, AA758972, W88501, R79538, AA868142, T31813, AI611065, AI459447, AI659739, AI969469, T56923, AA352595, AA443656, BF941829, AA486658, AI685615, AA866726, BG055808, AV693706, AI002067, BF934511, AW518815, BF939332, AA609306, AA056750, AA099632, AI129170, AA449605, W94371, AA815345, BF813939, AA351880, AI000931, AW235150, AW183661, AI221619, W88602, AW025692, AI186632, AA835539, AW580950, AV735997, W25565, AI198123, R14227,</p>

					R85624, AA339237, T56924, Z46193, AL047917, BG118168, BE208337, R40646, BE645348, N41512, T32911, AA214738, Z41816, AV714154, BE716957, AA486561, AA291082, AI802221, AA448053, AA999697, H15715, T39692, AI699002, AI612836, AW196460, BF446192, AI005381, AA722994, AW235727, AI203197, AI632619, AA703990, AI597695, AI685664, AI971096, AA678759, AI364856, BE708514, AA425266, BE206482, and AX041036.
HUSID53	1197	893863	1 - 382	15 - 396	AA323316.
HDPFZ30	1198	894151	1 - 1660	15 - 1674	BE620775, BE745235, BF791803, BE620232, BE964598, AA582196, BF238228, BF110281, AI690196, AW207633, AI417381, BE502565, AI494563, BE874106, H15131, BE312666, AI220943, AW055140, AI963799, N54913, AW008673, AI680222, H04038, AI000592, AA385773, H03355, AW374840, AI014381, H15190, Z41172, BF690487, AW374989, BE260443, F08100, AA348883, N88565, AI924734, T03532, BF314047, and AA348882.
HE8CW35	1199	894153	1 - 541	15 - 555	AA302479, BE783119, BF205883, BE278328, BE331125, BE563405, BE616754, W22934, BE616534, AL110464, AL535343, BE615910, BE535231, BF203563, BE734195, AI879268, BF844380, AW674108, BG034388, AV750279, BE297516, BF799458, BF950746, BF724141, AV694488, AA328041, AI308516, AW844703, AV749733, BF592216, BF896772, BF928433, AA626097, AA149421, BF359447, BF887770, BF679018, AL035214, AK024827, Z73965, AX013785, and AX015380.
HE9SE46	1200	894178	1 - 2109	15 - 2123	AA195155, AI268255, AW419341, AI824127, BF195090, AV721477, AI797143, BF223983, AI300923, BE891790, BE673738, AI292148, AI703401, BE549679, BG169264, AI268439, BF110064, AI292153, AW137704, AV750719, AI831208, R35403, AW470282, AW137395, AI379414, AI379109, BE468205, AI277432, AA057594, AI432198, AW614513, AI300400, AI300976, AI300968, AW138254, AA862254, AA978306, AA136742, AA187853, AA411758, AV751833, AW139302, AA418285, AI697655, AA136133, W44727, BF224184, AI299234, AW135673, AA933000, AW965235, AW581958, BE842466, AA195026, AW134622, AW810397, AI336837, AI214619, BE842499, AW388217, AA406572, AI342824, AW388179, BF223729, AW959525, BE842411, AV753167, AW810395, AW810396, BE842376, BE842464, AW810381, AI222659, AW589992, AI378218, AW370464, AA878171, BE842443, BE842493, BE552384, AA825160, AW810541, R25577, AI871540, BE842477, AW388239, AA985538, AW609142, BE710395, BF732761, AI468745, AW206391, TI0355, BE842495, AA424539, T75128, AA418322, BE842491, R05548, AA976873, AA363106, F11165, H09479, BF957929, AA114288, AW609162, AW837249, F12796, AA346579, AA112328, BG028208, AA917973, BE904971, AL532622, Z42588, AW810525, R18424, AW609160, AA424606, AW837458, AW810478, AA781256,



HBHMH72	1201	894186	1 - 1983	15 - 1997	AA625611, AI633662, AW609146, AA331566, BF957928, N90086, AA055551, BF184500, C18803, AI695403, AI741622, BF211339, BF368989, AW373855, BG036671, AA995638, N63577, BG255192, F05973, BE544637, BF001497, AA455944, BF736576, AA190723, AA904239, BE842396, AA436288, AI752009, BF960774, and AI305270. AL526652, BF310026, BE613821, BE539920, AW361819, AW390492, BF238070, AL530148, W05791, AA307647, AW363142, BE264546, AA375937, BE746397, BE858835, AI340103, AW853066, AA443913, BE727962, BF439977, AA004781, AW604651, BE388405, AA085536, BE387740, BE277503, R73209, AI057311, AI523929, AI096821, AA708631, AA554166, AI819985, BE390457, AI033059, AA677104, AI034382, AA167642, AA042807, T91681, BE813862, AA146993, C17892, N21021, AA146992, R11508, AA693826, AA098840, BE677840, AA781113, H14605, N75055, BE207815, N39974, T93806, AA324904, AI921466, AI249094, AA879127, AA629845, AW467450, AA043028, Z40216, AV727291, C16676, AW572863, AA765511, AI085423, AW190192, R18096, AI032969, AA353746, AA102037, T79644, AW189748, BE694734, R07352, BE819494, AA102036, C17327, R73144, AA864509, AA360980, AA627628, H14900, BE332775, AA444096, BE966199, H39676, AW895122, T79730, R10432, R42990, AA082086, AA322631, AA777383, T93857, R07402, BE019034, BF306819, AW377154, AW377153, T93283, AA908729, BF913752, BG036121, BE839074, Z21286, AA248773, and BF747833. AL528672, AL528671, BE740519, BG179875, BE876837, BE409722, BF125146, BE384347, BE905434, AA480075, BE736786, BE385086, BE386983, AI708432, AA777273, BE909934, BF901579, AA455206, AA362335, AA427548, AA969968, AA421632, AW104489, AI799353, BE275509, AI078240, AA454864, AI129255, AW955562, AA427707, AI310388, BE743523, AW170140, AW089692, AA903911, AA362336, BF813903, R72751, R72760, AA554328, AA483784, R48745, AI197789, AA304308, AA320293, AA491393, BF541788, AW591924, AA360465, AW839762, BF818256, BE622335, AA143722, AW591933, BF927574, BE071386, BF754668, BE622797, BE071396, BE967257, BE243667, BE071302, D20583, BE729081, BE093883, AL134524, AW877209, AL119324, AL119399, AL119457, AL119443, BE695785, AW804686, BE705903, BE705906, AW392670, AW971745, BE705905, AL042980, AI142132, AW861944, BE705904, AW372827, AW577135, AW604723, AW363220, AW384394, AW861889, AW858455, AW858526, AW858525, AL119396, AL119439, AL119391, AL119497, AL119496, AL119319, BF868697, U46347, AL119484, U46346, U46350, U46351, U46349, Z99396, AL134527, AL134538, AL119363, AL119444, AL119355, AL119483, BF868687, AL134529, AI142134, BF868684, AW604726, AL039912, AL042614, AL043037, AL037205, U46345, AL046356, AL045891, AX041029, AF188504, AR066494, AX030435, AJ251859, AX046357, AR060234,
HWAHAI 1	1202	894203	1 - 1243	15 - 1257	AL528672, AL528671, BE740519, BG179875, BE876837, BE409722, BF125146, BE384347, BE905434, AA480075, BE736786, BE385086, BE386983, AI708432, AA777273, BE909934, BF901579, AA455206, AA362335, AA427548, AA969968, AA421632, AW104489, AI799353, BE275509, AI078240, AA454864, AI129255, AW955562, AA427707, AI310388, BE743523, AW170140, AW089692, AA903911, AA362336, BF813903, R72751, R72760, AA554328, AA483784, R48745, AI197789, AA304308, AA320293, AA491393, BF541788, AW591924, AA360465, AW839762, BF818256, BE622335, AA143722, AW591933, BF927574, BE071386, BF754668, BE622797, BE071396, BE967257, BE243667, BE071302, D20583, BE729081, BE093883, AL134524, AW877209, AL119324, AL119399, AL119457, AL119443, BE695785, AW804686, BE705903, BE705906, AW392670, AW971745, BE705905, AL042980, AI142132, AW861944, BE705904, AW372827, AW577135, AW604723, AW363220, AW384394, AW861889, AW858455, AW858526, AW858525, AL119396, AL119439, AL119391, AL119497, AL119496, AL119319, BF868697, U46347, AL119484, U46346, U46350, U46351, U46349, Z99396, AL134527, AL134538, AL119363, AL119444, AL119355, AL119483, BF868687, AL134529, AI142134, BF868684, AW604726, AL039912, AL042614, AL043037, AL037205, U46345, AL046356, AL045891, AX041029, AF188504, AR066494, AX030435, AJ251859, AX046357, AR060234,

HLWAH05	1203	894289	1 - 1489	15 - 1503	AB026436, AR069079, AR043113, AR054110, A81671, and AJ279014. BE737155, BE737200, BE737154, BE866876, BG030094, BF769507, N62033, BF769436, N28254, BF083722, AA402099, BF204142, AW272174, BF844006, BF988097, AW582661, BF347767, BF764756, AA806140, H55465, AI905355, AW609986, AK024971, X87671, Z83844, and AL157480.
HUJCH47	1204	894599	1 - 1692	15 - 1706	AU133334, AI743592, AU142211, BE644960, AA888111, BF332597, BF983982, BF885783, BE772949, AW408701, T83134, AI559676, BF960005, BG258450, BF932122, BE542412, BE929173, AK023281, and AB042827.
HDPC184	1205	894601	1 - 2523	15 - 2537	BG031862, AV723684, BE644830, BE867439, AI761602, BG121490, AU139447, BE885715, AW138181, AI627710, BF127860, BE501862, AW299637, AA771960, BF972386, AW157785, BE502302, AI332585, BF061452, AI337078, BG028779, AI952467, AW612901, AW291847, AW264739, AW271986, AA632905, AW136299, BG114008, AW936433, AW361800, AI961399, AW072249, BE892069, AA490588, N22224, AI799104, AA972394, BE242460, AL120702, BE874535, BF431069, BF857462, AA152338, AA452888, AI623936, BE221570, AI695948, AW956081, AW772146, BF825674, BF809802, AW887420, BF219241, AA336028, BE870418, BE828337, BG058419, BF840979, BF811056, R07977, AI783545, BF811055, AI702336, AW793374, C02092, AI801100, and AK002195.
HCRPU72	1206	894605	1 - 931	15 - 945	AW593014, NG3575, AA830104, AW573104, AA832249, AA926917, BF925264, N94831, AA913055, AW978747, N90222, AA806195, AW674067, AA374666, AW963725, D87717, and Z55137.
HFTCG52	1207	894736	1 - 710	15 - 724	BF970515, BE314050, AV752768, AI908551, AI908565, BF125809, AW856249, BE408359, AV745547, BE889078, BF034352, BF663499, AW955529, BE264972, BE909920, BF183040, AW407316, AA393178, BE782529, AA485512, BE904868, BF680573, BE262322, H42954, BE910261, BE252952, AV688973, AA411585, N36051, BF206350, BF343862, AA477803, N79656, H93834, AA296976, D81930, AI910113, AA296690, BF116109, N33866, AA143285, AA082648, AA298311, AW276772, AA296812, AW473105, BF764144, AA298404, AA045562, BF056595, AI031665, AI066608, AW001391, AI290747, N88797, W21048, AA297564, AI186832, AI147480, AI084670, BG167518, AI140421, AI720871, AA557594, AA303056, AA854174, AI279073, AA814458, AA968894, AA512969, N95220, AI281075, AA305827, AI741421, R97588, AW874059, AI033995, AA411457, AW956361, AI950072, AA297445, BF673964, AI191381, AA298307, AI280176, AI682083, AI434953, AI310485, AI061395, AI937180, AI027471, AA954913, AW602659, AI884439, AI246055, AW196298, AA477804, AI568461, AV728317, AA402550, AW002095, N63979, N25183, AI418957, AA502177, AW366028, AI869942, AA857556, BE827119, AX018175, AX018068, and AC005922.

HBINP48	1208	894737	1 - 630	15 - 644	BE904868, BE252952, BE889078, BF034352, BE782529, BE408359, BE264972, BF663499, BF125809, BF970515, BE909920, AA411585, BF206350, BF680573, BE910261, BE262322, AA485512, AW955529, BE314050, AV752768, N36051, AW407316, BF343862, H42954, BF183040, N79656, BF688973, BF116109, AI908551, AA393178, AI908565, AV745547, AA296690, AW856249, N33866, BF056595, AA477803, D81930, AI066608, H93834, AA296812, AI031665, AW001391, AI290747, AW276772, AW473105, AA143285, AI186832, BG167518, AI084670, AI147480, AI140421, AI720871, AW956361, R97588, AI279073, AI741421, AI281075, BF764144, AA814458, AA512969, AW874059, AA854174, AA968894, AI033995, AI950072, N88797, AA298404, AA411457, AI310485, AI434953, AA557594, AI280176, AI682083, AI027471, AI937180, AI061395, AI191381, AA298307, AA296976, AI884439, AI246055, AA954913, AW196298, AA477804, AI568461, W21048, AA297564, AW366028, AI910113, AV728317, AA402550, AW002095, AA402549, N63979, N95220, AA303056, AI418957, N25183, AA857556, AI869942, AA297445, AA143229, AA502177, AA724336, AA305827, AA298311, N25233, AI200178, BF673964, AW602659, AI220131, AA082648, AA045562, BF344111, AI262872, AI266423, AI264945, AI192573, AW192188, BF221838, AI205287, AA938296, AI263686, AA485357, BE827119, AX018175, AX018068, and AC005922.
HCQDE22	1209	894831	1 - 829	15 - 843	N58518, AA699859, AA677543, AF130358, AC006556, and AP001660.
HKGCH22	1210	894999	1 - 779	15 - 793	AW169270, BF475369, AL524823, BE903984, AL530691, BE536833, BE881512, BG230736, BF033804, AA716162, AW183635, AI188277, AI141766, AI624087, AW173452, AI129419, AI683124, AI828817, BE903838, AI308087, BE544869, BF061917, AW291854, BE880241, AW471490, AW615124, AA701470, BF447518, AW025680, BF094269, BG251005, AW449210, AA315210, AW504333, AI239598, BE697836, AI284846, AI355748, BE742666, BE899398, BG027544, BF352604, AW376334, AW376337, AW752527, AW194025, AI890712, and AI565340.
HTPGG10	1211	895024	1 - 516	15 - 530	BE513091, BF541534, BF032123, BG164062, AI953481, T86266, BE304667, AV647382, BF104997, AA345449, AF177340, AF250558, and AF072128.
HFPHB92	1212	895129	1 - 1365	15 - 1379	AI076840, AI743984, AW058591, BF790789, AA020888, AA058832, AI670925, AA013221, AW003762, AI609358, AA059349, AI248700, N58955, AA700307, AA054237, AA019053, AA679437, AA054391, AA020776, AA018941, AA044980, AI423612, AW519204, AA995213, H86189, N99091, D60981, AA988183, AA988180, BF089105, AA324743, AA013316, AW611569, H85642, AA325374, AA044780, H85013, AA247209, H86122, BE835813, BE835814, AI540752, AW029457, AA058861, BE963818, and AC007246.
HL WBY26	1213	895166	1 - 1468	15 - 1482	BE312916, AW976020, BG027164, AA595199, BF341222, AW516908, AW975629, AW572281, AI339553, AA430329, AI041943, AI284951, AI652283, AW594568,

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HK/HR43	1214	895539	1 - 4707	15 - 4721	<p>BE867546, AI928825, AI929095, AW513008, AI554512, AI346113, AI733800, AI792608, BE166640, AW968343, AI040582, AI346501, AI285647, AI281031, AW292801, AI262848, AA468507, AI702901, AA468976, BE872481, BE714415, AA862642, AI983995, BE513006, AW842022, BE222398, AI810665, AI762122, BE762637, AW080778, AV728856, AV732578, BE139139, AA715814, AI250552, AI918620, BF991208, AI251034, AI284543, AI251284, AI251203, AI478223, AI223626, BF869052, BG236628, AU124127, AV743776, AI254770, AA574442, AI932599, BG029224, AW275971, AA610509, AI195351, AA533762, BF808063, AI591375, AW276698, BE042006, BE169870, AW965633, T57767, AW851025, AI288531, BE621316, BG251983, AI696854, H72530, AV705269, BF760919, BE139133, BF772474, AV709713, AW965632, AW173622, BF965775, AA664879, AC009238, AF128113, AC003104, AC006345, AI049757, AC005280, AP001724, AC006387, AC004477, AI096840, AP000688, AI161907, AC005520, AI136305, AI137145, U47924, AC011311, AC006453, AF205588, AC003026, AC010789, AC007546, AC011895, AI110502, AI122001, AI109825, AF134726, AI158040, AC008012, AC004019, AC004836, AP000523, AC006126, AC005067, AI031668, AC007739, AI096712, AC005913, AI035089, AI021368, AC016594, AC005069, AC007686, AI078477, Z95152, AC007383, AC004813, AI137230, AP001760, AC006333, AC021999, AI136137, AC005038, AC020904, AC003991, X87344, AI031776, AC010271, AI121586, AI251973, AC021868, AC002425, AC008805, U96629, Z83838, AI160175, AC018468, AI021918, AI078461, AC019209, AC009487, AC006512, Z98742, AC020754, AC006057, AI353777, AI161937, AC005800, AP001727, AC008736, AC018642, AC007272, AI031300, AC004098, AC007216, AC000052, AC024563, AI109623, AC005088, AP000300, AI138836, AI008718, AI021326, AI021397, AC004148, AP000117, AI031283, AI354861, AI109627, AC011444, AC004216, AC004263,</p>

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HLDCP43	1215	895550	1 - 944	15 - 958	AL521417, AL525296, AL521416, AL524355, AL522464, AL533389, AL526331, AL530863, AL526414, BE311955, AL524354, AL264358, AL669655, BF036463, BE312775, BF984883, AA477724, AL523655, BE937625, AW139040, BF314033, BF725110, AL126122, AL823620, AA312871, AL857695, AW440406, AW271360, AL200833, AL530380, AW136150, AW134590, AL024780, AA496351, AL526176, AL530864, BF476679, AA292746, T55664, AA496400, AL274000, AL283242, AL520874, AL801876, AW068036, AA583620, AA477725, AA829681, AL367466, AW136110, BF822582, AL526455, BE924996, AL554612, AL922256, AA758054, AW591703, BF315809, AL530093, AA296469, AL017151, AA293719, AA427485, AW300774, AL863281, AW889471, AL424169, AL291789, BF443650, BE256735, AL670976, AL523656, H01676, AW952132, AL522465, BE242458, H01677, AA364430, AA318820, AA508789, N55872, AL248018, AL540614, BE797269, AL533433, AA232553, BF344330, BG255921, BE735184, AA301453, AL085402, BE562900, BF763257, AA642901, AW188803, AL758262, AA908888, AW137361, BF311298, AL093805, AL525339, AL751518, BF810986, BF312350, BE504399, F19099, BE735989, BE785480, BE397771, BF207123, BF032466, BF342490, BE893629, BE264109, BE261742, BE926389, BF309156, AL581186, BE258582, BG252820, BE392626, BF206486, BE206819, BE276164, BE384894, and AC004150.
HFXKW18	1216	895626	1 - 2323	15 - 2337	T19088, AW753053, AW744934, AW752082, T03269, AV741012, AV744770, AW975618, AL905856, AW966053, AW966029, AW966075, AW966065, AW178893, AW960465, AW973334, AW966531, AW978634, AW966534, AW966560, D58283, AW966022, AW959799, AW966013, D59859, AW179328, AW177440, D80022,

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HSKCP67	1217	895644	1 - 1963	15 - 1977	<p>I50133, AR066488, AF135125, A82595, AX035429, AX035428, AR016514, AX035426, D50010, AR060138, A45456, A26615, A052274, AR066490, D13509, Y09669, AR060385, AB033111, AB002449, AR066487, AR074136, AR074139, U87247, A43192, A43190, AR038669, A30438, AB023656, AR087528, AR008408, X93535, AR060133, U79457, AR008382, and AA53357.</p> <p>BF684543, BF685031, AF740547, AW572309, AL535090, AW978678, AI761204, AA741319, AI001802, AW467009, AI986107, AI261766, AA421542, AA746023, R67552, AI823500, AA421398, BF511294, AI573196, AI376921, AA975777, BF446281, AA814148, AA024836, AA946575, AI149941, H23637, AA024792, AI277187, AA634859, R67551, AI214374, R01773, H22357, AI934527, BE170483, AI394623, AA069448, AA455743, AA991800, R01772, AW843923, AI090982, BF063997, AA069485, AI432666, AI493559, AW772685, BF849158, AL047675, BF795712, AL040207, AI432644, AI623302, AI866786, AI284509, AI434242, AI537943, BE885490, AI539771, AI537677, AI436429, AI433976, BG257535, AI805769, BG110517, BE897632, BG029667, AL042551, AI889147, BF904189, AI610557, AI242736, BG252929, AI916691, AL514935, AI494201, AW151136, AI866573, AI500523, AW858243, BG260144, AI889168, BF038804, AW172723, BF726868, AI554821, AI815232, BF811780, AW151138, AI433157, AI801325, AI045891, AI537515, AI521560, AI500659, BF968910, BF338002, AI582932, AI923989, AI284517, AI872423, AI371228, AI500706, AI491776, AI445237, AL046356, AI889189, AI500662, AI440263, AI633493, AI434256, BE886728, AI888661, AI284513, AI888118, AI859991, AI440252, AI890907, AI860003, BG249582, AI887499, AL042787, BF726234, AI274759, BE963035, AI432653, BF725868, AW081103, BF814335, BF726237, BG029053, BG168185, AL047422, AL045500, BF812438, BF032404, AI866465, BF814541, BF970652, AI364788, AV745008, AI371251, AI366900, AI866510, BE047952, AI923046, AI620284, BG120816, BE047737, BF904193, AW301344, BF814409, AI648567, BG179099, BF971016, BE895585, AI866608, BE018334, BF726183, BE968711, BF970449, BG107576, AV739574, AW663332, BE875407, BF726322, BE048071, AW858254, AW083804, BF814420, BF726504, AI499463, BG026428, AW191003, BF339322, BF727212, BF793324, AI269862, BF344652, BF816037, AL119791, BF904180, AA420758, BE785868, AI336575, BF792469, BE786043, AL041862, BG256592, BF814504, BF812961, AI531653, AW827289, BF032768, AI513985, AI345111, BF968504, AI344785, BG112879, BF036448, BG109270, AW162189, AI049851, AI351528, AL048323, AI628850, BG112718, AW827276, AW827206, BF038131, BF339594, AW118237, BF527014, BF812960, BF812938, BF822127, AW673679, AL046926, BE894455, BE047852, BF338723, BE876033, AL048375, BF727352, BG113712, BF526262, BF680133, BE880182, AI344817, BE536058, AX030435,</p>
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HBG0126	1218	895700	1 - 724	15 - 738	AI679032, AI269591, AI926385, AA427824, BF568093, AI307680, BE906048, AA985603, AA434527, AA358983, BG029042, AW016282, AI751352, AA904900, BE767196, AW751395, BE049123, AI538331, AI498177, AA428054, AW084403, AW085619, AW081391, AA461497, AW439261, AI081131, AI764997, AA761398, BE672411, AI634014, AW057677, BE221467, AW080458, AI244183, AW193005, AW339212, AW516122, AW027659, AW067803, AI954056, AW571944, AA772395, AI633339, AI916888, AI683203, AI422341, BE671235, AW025425, AI147736, AI090554, AI380245, AI089315, AW439080, AI282915, BF196022, AA351024, AI565421, BF476178, BE501181, AI205166, AW270733, AI751353, AI016528, AI135896, AI936764, AW024598, AI767080, AI135895, AA620766, AV707105, R10091, T49864, BF920348, T97167, AA399634, AI831497, AA152389, AA865196, AI277342, R50357, AW081268, R11029, BE503733, AA617807, AA649308, R11077, R10190, R53497, BF589988, N50819, R77618, AA399595, AA568975, AL525780, R72870, W68569, R71797, AA351025, R79394, AA912795, AW768731, AL524277, BF903645, AA894462, AL525820, H13235, H24510, BF568932, H30448, AA627105, BF340605, AW957565, AW067872, and AL133581.
HWHGQ4 6	1219	895880	1 - 1395	15 - 1409	AL515915, AL519637, AL516502, AL530378, AL534541, AL527244, BF206279, BE563468, BE894600, BF528095, BE734337, BE261458, BE547607, BF207129, BE018805, BE258538, AA314355, BF966160, BE259017, AI878986, BF527510, AW961100, BF218016, BF805533, BE935456, BE273252, BE935655, BE379416, BF689497, BE615561, BF805135, BG250649, BF805538, BG111006, W00898, BE394407, BF805707, BE543852, BE935562, BE538668, BG012784, BE797749,



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HNTOA59	1220	895940	1 - 3080	15 - 3094		W18181, AU118780, AU126249, BE739597, BF969172, BE874893, BG104700, BG167886, BE781278, AV758943, BF793394, AI335263, BG167884, AW977508, W60570, AW305247, BE739352, AI949857, AI769932, BE502280, BF033376, BF514535, AI961171, AI376764, AI018234, AW466903, AU145265, AI143581, W60661, AI498856, BG165828, AI949054, BF793906, AA569932, AA923566, AA873841, AI929237, W68384, H11953, AI051990, AI754510, H30442, AI190109, AI613113, AA456821, W68500, H18573, BE185505, BF248010, R60608, R16198, R16196, BE045974, R20002, BG166265, AA127202, H11954, R44819, R60554, H06599, W32128, H30393, H18466, AA374468, H30392, H30441, Z408835, AA767140, R16000, BF149232, R16197, AI537651, BE045981, Z41415, H88480, F08421, Z45096, N54033, AA127201, BF507730, AA662224, T16809, BE350273, T03447, AA224064, AA319784, AA095915, AI651893, AW877209, AL119457, AL119399, AL119324, AL042973, AW392670, AW804686, AW604723, AL119443, Z99396, BE695785, AW019988, AW861944, AW858526, AW858525, AW952414, BF868687, BE705905, BF868684, AL119497, BF868697, AL119319, BE705903, AL119483, AW363220, BE705906, AW577135, AW372827, AW384394, U46351, U46349, AW861889, AW858455, AL134920, U46350, AW962384, AW020592, AL119464, AW945168, AL134526, AL119484, AL119391, AI525653, AW951280, AV696791, AW963915, AW020328, U46347, AW020425, AW604726, AL042965, AL119363, AL119355, AW976035, AV727990, AL119418, AV660096, AW949477, AW963490, AW954384, AW023863, AK001292, AX030435, AJ251859, AX046357, AR060234, AR066494, AJ779014, A81671, AB026436, AR054110, AR069079, AF218031, T66654, T66655, T66656, and T66657.
HVVAL93	1221	895960	1 - 3182	15 - 3196		AL043329, BF965834, BG167996, BG026179, AI970994, AI740473, AI741566, AI817205, BF540943, AL529179, BE644852, BF439276, BF678309, AI740889, BF801570, BE544927, BF085261, AW466917, AI091411, AI435153, AI091191, AA129716, AI274064, AW117751, BG236187, BF439185, AA643517, AI753250, AI142000, AI436790, AI675270, AA133238, AI220185, AW204898, AW468944, AA421937, AI819042, BF034229, R69250, AA824389, F06421, H05999, AI742992,

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HAMGN0	1222	895968	1 - 1676	15 - 1690		

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HHEDS40	1223	896083	1 - 1616	15 - 1630	<p>AU130933, BF972801, BF309067, AU117186, BE281461, BE296618, R17028, AA280686, AW955760, AW750970, AW806537, AA148980, AA334700, BE140280, AA374605, AW806552, AA333995, AW750968, AW938765, BE140198, R10471, BF77225, BF092276, BF696500, BG115878, AW806585, AA279407, BF092280, BF799535, BF800903, AW843338, BE140231, AW806467, AW971745, AI918731, AL119484, AL119439, AW604723, AW392670, AW858526, AW858525, AL134530,</p>

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HBMBF28	1224	896325	1 - 1321	15 - 1335	BE513121, BG166812, BF976213, AA112166, W52962, BE775129, BE775109, AI654679, AA605186, AA313951, AA127531, BF852255, BF852536, AA129620, BF852282, T34127, W60439, BF852279, T23885, AA083967, BE391215, AA471251, AW085597, AI911400, AA783012, AW439249, BF852488, T10558, AI311253, AW273988, AW301875, T18528, AI310845, AI343313, AI383935, AW271874, BE049194, AI254460, AI583328, BF109512, BF991121, AI862292, AA729659, AI452749, BF436263, AA806351, AW664767, AA608519, AA102574, AA815210, AA458820, BG107975, AW999443, AW072615, AA902183, AW444896, BE467894, BE467873, BE219281, BF431719, AI733120, AI634529, AW188480, AF221130, AF213467, AB032252, and AF161435.
HIPAZ12	1225	896370	1 - 1460	15 - 1474	BE745631, BE798676, AW006921, BE740341, BG030427, AW006942, AI758245, BG115203, BE890368, AV726709, AI096483, BE734387, BG031776, BF306177, BE898636, BF034940, AI862446, BG026010, BG032290, AI949427, BE891167, AI927510, BE894095, BE871029, AI688715, AI949438, BE899208, BE542732, BG171529, BG034044, BE856314, BG114169, AI742409, BG036345, BE810270, BE082189, BE872791, BF306351, AW300174, AW612446, AW195534, AI631745, AI814307, AW172845, BE464497, BE674861, BE439957, BG166576, BF062474, AA934354, BF085122, AW170506, AI083694, AA024537, BF939907, AW166803, BE048747, BF109523, AI927519, AV753474, BE385486, BE898475, AI537457, BE326533, AA160271, AW002966, AA992203, AA282926, AA496948, AI310526, BF433911, AI628618, N95057, BE698697, AI431849, AI076811, AW190546, AI372954, BE046533, BF061582, AW271454, AI475865, BF195847, AW194708, AA553362, BE218026, AI741233, BE671041, AI741545, AW772014, BE767571, AW300052, AI653780, AA167276, BE906631, F30337, AA188875, AI935331, AA283136, AW630625, AI191807, AI127643, BE501561, AI241178, W72254, AA845315, AI434610,

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HISCV39	1226	896442	1 - 2715	15 - 2729	BE386747, BF313385, AU139053, AU133912, AU118931, BG023875, BE313242, AL046669, BE904361, BF970137, BE785783, AL517922, BE388188, BG114428, BF034447, BF093028, AW963991, BE378253, BF093078, AU129300, BE254743, AU129420, BE386011, BE392925, AU151443, BE546723, AU129248, AU154629, BE675999, AW025403, AI472148, AU151456, AI811059, AU151542, BF033164, BE439494, AU145379, AU158371, AU151407, AU144399, AA447393, AW408840, AU123483, D58723, AI139575, AI890927, AU145761, AA742462, AI800376, AW501970, AA447394, AA628966, AA654515, AA236994, AI888687, AA834615, AI394397, AA973832, AW770593, N72883, BF892957, AI913725, BF996184, AI570143, AI092335, AI805036, AW003614, AI803668, AI224536, AA446111, AI582374, BG056105, BF378835, AA877651, AA743851, AA411511, AI097064, AA576481, AI2888292, BE869019, R91353, AW051468, AI936321, AI476393, AA889296, W22572, N74271, BF827295, BG009298, AA350263, AW515354, AA766834, AI082690, AA402357, BF851532, W27193, AA707912, AI539567, H29965, AA627820, AA099038, AI287346, AI906073, W22306, AW079133, AU156486, F10747, T58626, T81314, AW821349, H53387, H02136, Z39927, R85475, T79137, AA214490, AI678380, AW578259,

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HPTVU91	1227	896517	1 - 862	15 - 876	W93943, AA531276, BF680458, AA552438, AI831051, AW294768, AW273371, AA484181, AI609617, AJ403111, AI583153, AW973320, C00019, AW452730, AW878960, BF872746, AA627648, AW130295, and AR037875.
HSLJD02	1228	896743	1 - 965	15 - 979	AW752082, AW753053, AI905856, AW178893, AW966049, AV744934, T03269, AV744773, AV719468, AV718707, D80164, AW975618, AW964737, AW966053, AW960465, AW973334, AW966531, AW978634, AW966534, AW966560, D58283, AW966022, AV744770, AW959799, AW966013, D59859, D80022, AW966041, D80166, D80195, AW966029, AW975621, AW978648, AW966075, D80193, D59927, AW966065, AV741012, D51423, D59619, AW978661, D80210, D51799, AW965163, AW973470, D80391, D59275, AW960553, D80240, AV743601, D80253, AW973541, AV719822, AW964766, AW966054, AV718489, AV720203, AV718692, AW964756, AW966050, AV719188, AW973307, D80043, D59787, D80227, AW966062, AV719324, AV718440, AV718938, AV719783, AV720028, D59502, AW959597, AV718633, AW959628, AW965177, AV742667, AW975605, AW959570, AW177440, AV718800, AW973485, AV720211, AV718931, AV718844, AV720464, AV719557, AV718770, AV720731, AW959582, AV699447, D59467, AW958992, AV722801, AV723927, AV724520, AV721784, AV699550, AV699927, AW973474, AW975613, D81030, AV745080, AW960473, AW973423, AW965185, AW965197, AW965196, AW965184, AW973488, AW965175, AV720878, AW973482, AW179328, D80212, D51060, D80196, D80188, D80219, C14014, AV720791, AV742001, AV701125, AV701335, AV701166, AV742430, AV701149, AV701043, AV701332, AW960532, AV701017, AV701248, AV742048, AV742720, AW958993, AV701431, AW959136, AW956397, AW959062, AW964477, AW956434, AW964488, AW949641, AW949656, AW949654, AW949642, AW959202, C14331, D80038, AV744690, D80269, D80366, D57483, C15076, AW962082, AW178775, AW966043, D50979, AV744768, D50995, D59889, AW962245, AW360811, AW966023, AV701130, AV701419, D80134, AV701422, C14389, AV699746, AW366296, AW375405, AW966059, D80045, AW960454, AW973330, AW378532.

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HNHOF94	1229	896802	1 - 843	15 - 857	<p>AW504168, AW407632, AW732205, AV718633, AI687343, AA678950, AV718938, AV749092, BF337291, AI284640, AW970571, AW193265, AI046409, BF055844, BF448904, AI613280, AU154166, AI270117, AI305766, AI350211, AI963720, AW468349, AI431303, AV764406, AI610159, AV759382, AI754653, AW472872, AA828704, AW276827, BE350475, BF794808, AV710066, AI334443, AI814735, AV761403, F29989, AW303196, AI251034, BE139139, AI250552, AI284543, AA491814, AV760937, BE047069, AV763354, AW103758, AI375710, AW301554, AI245693, AI345418, AW301350, AI251284, AV734666, AW274349, AA502860, AI345654, AI251203, AV762139, AW327868, AA469451, AV718908, AI688846, AI890348, AI223626, AI619997, AW193432, AV764307, BF475381, AV760774, BE138387, AI144101, AW302013, AF330238, BF857849, AW438643, BF683672, AI499938, AW303098, AV740801, AI341664, AW975425, AI061334, AA806796, AI254770, AW502975, AI826761, AA847499, AV758870, AI358343, AW378532, AW303176, BF793766, BG177715, AI289067, AW500125, AW406162, BE046438, AW088202, AV728425, AV762098, AI471481, AW268973, AW963497, BF746395, AV762050, R17793, AI613389, AI041690, AW965008, AI754955, BF851403, T74524, AI633390, BF668217, BF677892, AI601229, BG249643, AW979031, AV760777, AA503283, AV764241, AW419262, AI049634, BF917346, AI570261, AA578861, BE042006, AA743968, AI037683, AW088846, AW340905, AW872676, AV760207, AV758994, AV759580, AV725423, BG099291, AW996768, AI246409, AW408767, AI537800, AV763971, AI053672, AV276435, AA630925, AW513362, BF918590, BF725121,</p>

<p>             AI085719, AV761188, AV756809, AV761608, BF241967, AW769687, BF827410, AA682912, AL044940, BG058664, BF919090, AI355007, AW805539, AI298710, AA811741, BF813686, AA719524, AI830390, AL121950, AC016026, AC008403, U57008, AL121897, AL031123, AL021393, M37551, AC005200, AC017002, AC018644, AL121601, U18394, AC005520, AC016898, AC008569, AL122001, D83989, AC007999, AF015147, U57009, U18395, AL121675, AC005488, U82671, AC004152, U57005, AL023656, AP000117, AC002455, AL450226, AL139352, AL137039, AL162505, AP001172, U18391, AC004814, AL031121, AC006241, AC011462, AC011455, AL022322, AF015157, AL354915, AC008008, AC035150, AC002470, AL034372, AP001718, AC012442, AC010142, AL031680, AL034549, X55925, AC004650, AC005913, AL121581, AL354720, U18392, U57006, AF077058, AC005291, AC034242, AC007676, AL049795, AL450224, AC010422, AC006213, U18393, AC005280, AL049766, AF015156, AC005047, X54176, AC006430, AL008629, AL353807, AP002534, AL158196, AF317635, AC019046, AC078889, AC005288, AP001746, AC006251, AC004675, U18387, AC007561, U18398, AC000003, AC002430, AB023049, AC004263, AL137839, AL138741, AC005535, AC005231, AC004929, AL117382, AC005914, AL391839, AF088219, AC000396, AC003074, AL136139, D84394, AC008892, AL031729, U57007, AL121712, AP000193, AL035587, AC027279, AL117334, AC007384, X55926, AL121653, X54181, AL008716, X54180, AC008543, AP001731, I51997, AC016025, X75335, AJ009611, AL353573, AC006019, U18399, X55931, X53550, AP001753, AL445248, AC007541, AC004234, AP001054, AL049557, AL030997, AL109801, AC005046, AC009305, AL033543, AL359846, AC005193, AC005900, Z98742, AP000557, AL035659, AC007404, AC004941, AL136980, AC004000, AL031005, AL096701, AP000493, AC022308, X54175, AC005756, AC000052, AP001717, AC002538, AC008567, AC008519, AC004228, U18390, AC011500, AL138759, AC007677, AC005544, D87675, AC003983, AC018751, AL118520, AC009516, AP000555, X54178, U63630, AP000359, AF015151, AC016830, AC025588, AC004134, AC008770, AC002289, AC010489, AC003684, AC004815, AL355520, AF222685, AC006483, AC024561, AP001346, AC004019, Z82190, AC005089, Z97352, AL356596, AL358214, Z97632, AL050341, AC027319, AP000345, AC004089, AC005190, AL158830, AC004638, AC016398, AC005778, AP000501, AL035079, AL022097, AC005387, AL357498, AL136981, AL109935, AC011559, AC005745, AC008379, AL392173, X55924, AL157838, AC015555, AC008079, AC006285, AL136300, AF222684, AL139182, AP001434, AC005484, AL049537, AL109936, AL031311, AC002985, AC027689, AP001630, AC005088, AL079340, AC004858, U73630, AC006038, AC007620, AL096861, AL159977, AL356244, L78810, AL031391, AL096793, AC004686, AL137141, and AC009154.           </p>				
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H2CBM85	1230	896826	1 - 1863	15 - 1877	D79520, AA307713, T51211, D79560, AA164697, T51316, and AA164269.
HSLJCA5	1231	896843	1 - 1169	15 - 1183	AL516920, AW964106, BE858245, AW795409, AW673478, BF114638, BF132131, BF679778, BG026583, AL516919, BF341615, BF217674, BF707558, AA099336, BF102691, BF954540, AA345865, Z44894, AA297234, AA125929, R24704, F05865, H26672, F08547, AA363324, F08631, BF229282, R17826, D60091, AR060756, AR064659, and AR080553.
HETJW92	1232	896874	1 - 1923	15 - 1937	BG261034, BE873193, BE870717, BG178811, BF036793, BG255133, BE380025, BG036667, BG254223, BE537632, BE379942, AA806214, AW965573, BF038191, BE180564, BE566251, AI910856, AA427513, BF036364, BE870823, BG036684, BF243233, BE538582, BE766499, H84673, BG180137, AI457792, BE180561, AA126879, T08550, BE871328, BF807078, BE539894, AA315096, AA134019, AI904879, H09290, R15941, F06590, BF038357, AI904853, AA453210, R35529, AA131851, T80473, F12752, BE548872, AW748181, BF431148, BE697942, AW015950, T74962, R56752, BE928469, BE868290, Z45897, H93521, R14640, AA338081, R12350, AW630088, AW674984, AI766506, BE868654, R14130, W38749, AW176253, AA430722, BF107388, BF184027, BE565590, BE018642, AA046853, AA385050, AA363860, BE719343, BE180554, W60935, AL045790, BF036293, BG179107, BF081700, BE148648, W21050, AA292157, BE180509, BF827222, AW998195, BE180614, AC009514, AL117612, AF087453, AX014821, and T66567.
HTEME02	1233	896919	1 - 843	15 - 857	AL536762, BF528330, AU140226, AW813975, BF339601, BF877029, BE834048, AI033712, BE699209, BF968237, BE695991, AV704911, BF843839, BE936062, BE936073, BF090166, BE936016, BF877036, BE936045, BE936021, AV722286, BE935949, BF090180, BG253555, BE699218, AW958768, BE008917, BE093398, BE935946, BE936081, AI907763, BE936067, BE008872, BF853428, AW897578, BE935954, BE936022, BE935984, BE936000, AI080415, BF362442, BF856881, BE935952, BE182983, BE182925, BE936035, BE935992, BE935956, BF843139, BE936006, BF815618, BF843841, BE182913, AW820982, BE936029, BG003478, BE699195, AI954084, BE936057, AW998139, AW935173, BE167347, AW407257, BE182944, D54061, BF852038, BE936071, AI807732, BF877047, AW820811, BE699198, AW964848, BE719419, AU149138, AW601176, BF746224, BE935981, BF876470, C04059, BF746143, BF820892, AI174699, BF852007, AW602654, BE008933, BE182912, BF812688, BF082986, BF229394, BE182981, BF877124, BE699192, BE182947, AI984573, AW748393, BF858057, BF852348, R98306, BE936072, BF751601, BE897718, BF734862, AA432282, BE936027, AW820825, AL041005, BE830405, AI564483, BF812628, BE838240, AA191629, H81609, T31059, BF229391, BE008977, BF962149, BF090176, AW379481, BE909785, BF902239, BE008877, BF375729, BF353448, AA131336, BE002031, BF852110, AW167226, AW580733, AV7555738, BE008929,

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HCYAC03	1234	896987	1 - 1774	15 - 1788	BE613319, AV687447, BG166531, AV687625, AV686519, AW952404, BE877777, BE612728, AW160677, BG054984, BF732575, AV706186, BF439548, AA813278, AV725712, BE876393, BE645016, BF195583, BF055022, BF967994, BF206792, BF445077, BE348758, A1612729, AA521082, BE866270, BF195330, AW753532, A1869290, AA161332, A1806813, BF665995, AW068627, AW206294, A1912708, AA843967, BF446480, AA447934, BE881059, AV725638, AA525839, AA843171, A1091239, A1422091, A1802199, BE042949, AW003760, AA402367, AA910679, AA037122, BE327200, A1816253, BG114876, A1929639, W56256, AW275342, A1091181, BE218417, AW156905, AA779099, A1290167, A1057601, BG168894, AA781082, AA496466, AA287736, AW022886, A1685261, N35917, AA873496, AA992894, A1168731, AA287895, AA774263, N22752, AA843277, AA283859, BF673423, A1678620, A1061630, AA984140, AA907413, A1816334, A1361356, BF692350, BE383297, BE218532, AA056053, AW157133, AW161562, BF692523, N94537, BE673987, W17196, BE538941, A1027113, AA293343, A1004733, A1079727, AW516664, H15827, AV749347, N92441, W23456, AW470953, AW160789, AV684142, AA935683, A1566161, N27027, H99819, N94329, BE702242, BF690981, BF028133, AA725042, BF681161, AA258458, AA931689, BE077323, AA910558, A1128706, AA664059, A1446094, AA872758, BF762393, AA861311, AW162091, N34534, N30220, AA846407, AW513259, AA918516.

AW372569, AI423456, BF762409, N59261, AA973796, AW073424, AA448868, AA857543, AA399445, AA515285, R90917, BF436213, AA399423, AI245725, AA911982, AI973249, AA872812, AA995135, AW403982, T63367, AV686647, AA643728, AA577338, AI027067, AA293329, AA085090, D81853, R56184, BG109166, H23642, AI499779, AI571822, R64440, AA029562, AA258388, H13310, W46630, AA114922, H41386, AV728247, BF210620, AA744562, AA993782, AA744564, AA029728, Z43644, D58802, AA837702, AV689458, AA620561, AI093848, W33009, AA602387, AI570545, AW167859, AI207050, AW167862, AA421573, C14582, BF698977, AA112870, N36220, AA055763, AA782100, AW083148, AA939289, R32391, R90813, AA410303, N89859, R12614, AW162345, BE464247, AI027262, R63828, AW023549, AA311835, AW517389, AI887683, H38655, AI348632, AW015099, T54934, AI826301, BF572327, AI360861, W30811, AI028088, AI307614, AW206298, AI343572, AI744258, AW276195, AA055962, R42373, AI167826, N78834, AI334644, AI676004, F04381, AI400913, AI401566, R18327, AI582814, AA724357, AI167754, BF446208, R90812, AA829478, AA299176, AW197279, AA807259, T54768, R20519, AW068628, AI348509, AI041151, AC004752, AK025312, AL353956, AF061981, AL122045, AK025209, AF153205, I89947, AK026480, AF130100, AL389935, AK026542, AF116631, AF111851, AF159615, AF106657, AF217982, AL122050, AL049382, A08913, AF125948, A08912, AL080163, AL162002, I48978, AJ299431, AF058921, S78214, AF119909, A08916, D16301, AK000450, E12747, AR038854, Y16645, AK025414, AF321617, AL353940, A08910, AK000718, AL137429, A08909, AK027193, AL442082, AF061573, AL122123, AK000618, AF217966, A08908, AF030513, AL137537, E05822, AK025375, AB047904, AL133665, AL080159, AF118094, AF119875, AK026885, AL117460, AL050116, AL389939, AK025465, AJ012755, AL133557, AF155148, AK026550, I89931, AF017437, AK027204, AL049452, AL137533, AF103113, AF106862, AR087170, AK000418, AK026642, AL049314, S79832, AF022363, S76508, AF314091, AI8777, AF143723, X67813, A15345, AK026865, AK025378, I33392, AB052191, AK025541, AL137550, I09499, AL137547, AF090901, Y07905, AL110222, AL389982, AF032666, AF026816, S61953, AF067728, AX042059, AB048953, AF118090, AL137271, X57961, AB050431, AL110158, AF130077, AL096744, AF185576, AL117432, AK024538, AF271350, AK026408, AB047248, AK026583, AX045627, AF111112, AB048975, AF155827, AI2297, AL137294, AF242525, AF090934, AF090943, A77033, A77035, AF087943, Z72491, AK026744, X53587, AX045159, AF090903, L31396, I66342, AF090896, AF139986, L31397, D83032, AB049848, AR029490, AF116654, AK026532, AK026591, I89934, AK000652, AL122110, A65341, AJ000937, AB048913, AB048919, AL050172, AX017991, AK026746, AL133075, AK025524, AF208850, AL133072, AF113013, AF116682, AK026462, A08911, AL133560, AK024992, AX019230,					
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					<p>AK025967, AF118070, AK026855, AB047623, AL117583, AL117416, AK025435, AL137711, AL162062, AK026627, AF274348, AK026927, AL023657, AF274347, AL157431, AL137488, AL050155, AL137292, AJ005690, I00734, AF267991, I89944, X06146, AF119894, AK027114, AK026504, AL049300, AL050024, AL049938, AB047878, AK026630, AK027144, AF130082, AL137558, E00617, E00717, E00778, AF130110, X93495, AL137705, AK024594, X63410, A08907, AF056191, I48979, AF119878, AB041801, AK026959, E06743, AF202636, AB048974, AL162006, AF130105, E08631, AX027129, AL133014, AL359618, AX019229, AF102578, AF207829, AK000323, AF116644, AL133077, AF078844, AF119883, AK027113, AL049460, AK000247, U95114, AF130055, AF119896, AL137478, AK000496, U39656, AK026762, AK026784, AF116602, AL359601, AX020124, T63693, T91023, T84597, R13763, R25031, R43789, R53025, R43789, R55911, R81849, R90918, H53640, H53684, H86289, H97448, N25711, N43983, N59141, N75178, W31472, W35396, N89770, AA018416, AA019585, AA122341, AA565211, AA613126, AA713967, AA676024, AA831898, AA876196, AA906972, AA932624, AA953784, AA953789, AA975996, AI028021, R29165, AA092968, AA782815, AA890689, AI042642, AI093012, F02527, F04532, AI244846, AI276792, AI279043, AI298862, AI364763, AI202774, AI453449, AI417788, AI418178, AI498899, AI423417, AI127285, AI148738, AI187434, AI652739, AI219638, and AI264050.</p>
HTTBH18	1235	897055	1 - 2373	15 - 2387	<p>AL520642, AI494412, BE693700, AW168998, BF063293, AI825776, BF132948, BE744137, AW467155, AI536969, AA629377, AI347598, AI130588, BF970939, AI802311, AI347474, AW052192, AI571862, AW070863, AA063623, AW007997, AA496434, AI597967, BF130696, AI768796, N93763, BF679386, AU153027, BF899815, R51785, AA525256, AA169356, AI889208, AI983041, H66516, AW582396, AW016601, BE817829, AW015966, AA169524, AA129710, AW960887, AA947350, AW014984, AW014415, BE770931, AI932541, AI949271, T67439, AW022052, AW517830, AI808859, AI092687, AA664956, AI017031, BF056952, AI218938, AW274021, AI185668, BF434501, AI039071, BF000553, AW629345, BF001499, AA725874, AI808859, AW242065, T87528, BE504107, N53667, BE219751, AA884894, AW612719, AI949723, AI393252, W56387, W73623, AA342548, AI340027, AI566026, AW571901, AW515639, AI434882, AI022045, AW970665, AW301286, R02181, BF839205, AI808035, BE217782, AW341806, AA279068, AA169871, R09308, BF221606, R08750, T87529, H42318, AI808036, AW772654, AA733025, AA489394, AA321098, T93900, R09276, R91186, AA524054, AI916642, N90095, H68702, R91140, AA404545, AA633153, BE817830, T55105, AI919113, H66517, AA804595, T55272, H66322, BE466157, R09172, AI766502, BE964325, W38554, R09202, AI370338, H46903, T69472, AA169565, AA089818, H46904, AI819069, AA036708, AW242977, H43086, W73671,</p>

HOGBM94	1236	897226	1 - 2152	15 - 2166	BF800257, T12052, BE770983, BF800256, AI917650, AK026217, and AK023161. AL524908, AL522838, AL523970, AL526643, AL524638, AL526672, AL523969, AL524637, AL524907, AI126706, BE794117, BE798093, AL522839, AV655733, BE382404, BF969642, AI479847, AW192829, BG023810, BG179576, BF313172, AI279889, BE262983, BF207282, AI421809, BF314977, BE893705, AW248323, BE781659, AI768333, BF304264, BE539154, BE897878, AW006137, AW468336, AW072544, BE504335, AI741742, AL039221, AI611322, AW189019, AI969319, BE245491, AW474329, AI677833, AI122737, AA628927, AI270585, BF111442, BF207091, BE909947, AA526877, AA678843, AW972646, BF509049, AW514217, AI126518, BE244055, BE245616, BE780139, R61716, AI159845, R60720, AI494284, W44894, BF834449, AI088828, AW905107, BF527333, AW275109, AA480271, AI815186, AW905853, H61824, AW248087, T87354, AW590211, T95251, AI521942, AW590958, AI696055, T86573, AA010241, AI537065, AI800318, AA460778, W39542, F11857, R60721, T86750, T67464, H61825, AA206165, AA633710, BF804467, AI203927, AI624700, BF855013, BE502268, R51805, AA010204, AI800319, AW972451, R61717, H25779, BE261277, BF436295, AI184465, AW872818, N48718, AA460349, T78865, AA205932, T95252, AW190460, AW168744, AA278768, BF767959, BE175539, AA043867, BF511425, AI940174, T69497, AA044312, AA904823, BF738548, R51806, AI825526, AW150465, BF928026, AI934003, AW972648, C02494, BF965789, AI500029, AW411235, AV660258, AA127565, BG122594, BE901481, AW411265, AW410902, BE276577, BE393551, AI553640, AA830506, AW411351, AV686064, AI094639, AV706527, AI872906, AI917988, AW411043, E12646, AF192522, AF126781, E12579, A76335, AR068753, AJ277390, AF217994, A91160, AR054173, A93016, AL117644, S68736, S71381, AR068751, Y11254, AF065135, A76337, AR072149, AR072729, I92592, AR030544, AJ006417, Y11505, AL133636, AB025103, AR075041, X62580, AF036268, X62773, AL358133, AC021019, and M22640.
HSLAS08	1237	897262	1 - 2175	15 - 2189	BF686837, BF690587, BF686843, BF129618, AI908751, AI908746, AI908741, AI908747, AR072540, AR072534, I24403, AR084426, E02455, AX035427, A49701, AX035430, A92666, A92668, A92667, A92665, A00782, A02741, AI4595, AI8755, AR096518, AX018983, A94046, A94054, AR067785, E16475, I12245, I58322, I58323, I56770, I56771, A25856, A95106, A95105, AR038762, AX001322, Z96332, I96211, AX024519, AX024530, AX024508, AX024541, AX024497, AX024552, I01012, AX000478, AX000480, AX018968, AX000474, AX000476, and AX018972.
HTLJA52	1238	897328	1 - 1150	15 - 1164	BF979319, AW119073, BF062352, BF059117, AW027493, BE501011, AI393331, AI066607, AI637906, AI198866, AI654236, AI962816, AI209196, AI220535, AI798943, BE671645, AA776779, AI650410, AW631146, AI377343, AW304013, AA994513, AI632454, AW614024, AA962362, BF062007, AI150204, AA757242, AA883138,

1577

					<p>AX001082, AJ244004, AR062872, AX035462, AR062873, AJ244005, AX006816, AJ244003, I44681, A20702, AX006825, AX006826, AX006822, A43189, A43188, A85395, A85476, AX008555, A60961, A60977, AR075286, I05488, AR008429, AX021518, AX006823, AR037157, I08196, AX042372, AX008865, AX008867, AX027908, AX027904, AX027906, AX008868, AX032758, AR027319, A91751, AR027318, A68112, A68104, AX047064, A06419, A21892, AX033247, A23997, AX033249, A68114, A89633, A89634, AX006821, AR067731, AR054109, A21895, AR067732, AX008265, A05160, A08030, A20502, A86792, A58522, AX003194, I63120, AR069362, AR028564, A98767, A93963, A93964, A91752, A58524, A64973, AR091716, A98420, A98423, A98432, A98436, A98417, A98427, AR002333, A60985, A60990, A58523, AR073846, A47368, A60987, I19516, I19517, A76773, A22413, AR080280, AR069364, A29109, A32111, AX006030, I63560, AR009152, AR009151, I63561, I63563, A84772, AR038762, A84776, A84773, A84775, A84774, E14304, I07249, I08776, I15353, A81878, AR069374, I25027, AR068508, AR068510, AR069426, AR069375, AR068509, A63954, AR091571, I26929, I44515, I26928, I26930, I26927, AR085090, I44516, I58322, I58323, AR003585, E16678, AR093385, I25041, AR093392, Y16359, A38214, AX027815, I56772, I95540, A95096, A95106, A95105, D78345, X83865, A92133, A91750, AJ244007, A18053, M28262, AX011024, AX003207, I15717, I15718, A60212, A60209, A60210, A60211, E03627, AR096545, I49890, I48927, AR069650, A02712, A77094, A77095, AR080470, I84553, AR077142, AX033488, AX033489, AX033490, A95051, I84554, AR095492, A18050, AX012337, A23334, A75888, I70384, AX033474, AX033486, AX033487, A60111, A23633, AR007512, I08396, I00682, A11623, A11624, E00609, E13740, A11178, E01007, A10361, A35536, A35537, A02135, A04663, A02136, A04664, I06859, I08395, AR043601, A11245, AA416575, AA416679, AA757175, and AA907698.</p>
HISCG60	1239	897517	1 - 1710	15 - 1724	<p>AA098949, BE170936, AA085520, AA340319, BE252421, AA731691, AL042853, AA579179, BF681619, AA355749, AL042756, AI334443, AV758790, BF678990, AL042420, AW974932, AV756809, AW265393, AW069769, BF337291, AL037683, BG249643, AL042753, AL138455, AI733856, AV755654, AL079734, AA527209, AW966333, AI636627, AV760391, AV763418, AV759935, AW062724, AA828047, AV763276, AI358712, AA584489, AI754653, D87432, AL133448, AC009086, AC008738, AC005000, AL117258, AL034417, AL139099, AC008805, AL353810, AL035420, Z68276, AC005399, AL121919, AL355365, AL035401, AC005971, AC005874, AF134471, AC006088, AC006950, AL161901, AC006314, M30688, AC006115, AC008745, AC004686, AL034422, AC010352, AL121891, X54486, AC005225, AC007671, AL354696, AC005701, AC008543, AL023575, AL135796, AP001690, AL049552, AC002073, AC005261, AL121897, AC008687, AC004655, AC011482, AC005052, AC002301, AC026431, AL137802, AC026881, AC005899, AL357497,</p>

					<p>AL021393, AC009955, AC007673, AC004994, AC005089, AC004448, AC012318, AL353748, AF196779, AL049539, AC008125, AC012077, AC007546, AC004859, AL035587, AP001710, AC004150, AC004913, AC004477, Z97352, AC005919, AC002531, Z83840, AC006241, AF091512, AC010458, AL049872, AC007383, U91322, AP000517, AC005005, AL109798, AL049540, AL136096, AK025786, AC004841, AF190465, AC008403, AL049636, AC005057, AF178030, AC016656, AB023054, AL049780, AC004087, AL079303, AC006285, AC004797, AP000246, AC009087, AC005696, AC006071, AL031767, AC008806, AC002350, AL008735, AL360227, AC015651, AL035400, AC005164, AC007298, AL135927, AC007227, AC005839, AL163853, AP001630, AC005224, AC005038, AL008710, AL049760, AC024947, AC007907, AL132765, AC004858, AC021036, AL096791, AL024507, AC005330, AL034429, AC006006, AC005540, AC007151, AC004066, AL049871, AC011464, AC005939, AC011484, AC006509, U62293, AP000359, AL096865, AC005828, AL080243, Z83843, AF109907, AC005358, AC005972, AL136418, U96629, AC008626, AP001714, AC005539, AL133258, AL157768, Z99495, AL138976, AL121715, AL353802, AC011473, AL008627, AL137220, AC020750, AB020865, AC016652, AL355610, AF165142, AL050335, AL033527, AC002418, AC026888, AC010271, AL121601, AL135905, AC003010, AC004089, AP000065, AP000130, AP000208, AL359846, AC083862, AL049820, AC004408, AP000247, AL031587, AC011469, AL121583, AC083863, AC004847, AP001208, AC006121, AL034380, AP001705, and AC006451.</p>
HEBFI34	1240	897852	1 - 1175	15 - 1189	<p>BG250493, BE786038, BF968793, AI148564, AV714668, AI911259, AV717040, BF970799, BF031366, AV701362, W60958, BE221213, AI683823, AW268612, AW275920, AV711084, BE551456, BE551386, BE550880, AA404358, BE669452, AW956755, BE674209, BF669035, BG110482, BE504275, AA443743, BF244446, AI271616, AV703458, AI675766, AA936391, AV763474, AA403095, AI311856, AI695003, AI082141, BF968311, BF381847, BE905833, AI079408, AA503819, BF036575, AA393808, BF027805, AI189388, T86418, BF575757, N30670, AA393892, AA974212, AA827290, BE872085, AA910984, AV711478, AI014740, AA804216, AI219049, AI566294, H96780, R21152, AI374805, AW804422, H23300, AI299755, R99539, N75557, R99538, AA476793, AI094470, AA417638, AW952564, BF724670, BF221760, AV725011, W05584, AI133161, AI089034, AA905867, AA677753, T86508, AI240536, R99550, AI538267, BF753822, AA335337, BF811514, AA918453, AA313386, AW445161, Z40615, H92649, W87796, BE272827, T39983, AW298229, R08382, BF475310, H23186, AV714823, R08329, H96103, H97711, H80948, T99199, N24555, AA375092, T99198, BE260997, H92437, AA383378, BE536680, AI085108, AF242523, AK024574, AF151859, AC004148, AC024082, AC009263, and AA419545.</p>



HKAEK20	1241	897885	1 - 1115	15 - 1129	<p>BE872600, BE744440, BE392074, BE747852, BF437467, AW294718, BE280077, BF594560, AI362833, AI499710, AI005303, AW168051, AA587270, AI885622, AI394581, AI376592, AA833957, AW665636, AW510777, AW663550, AA236899, BF437501, AI937063, AI879044, AI129399, AI937892, AI051543, AW005685, AI333338, AI369653, AI343383, AI088461, AA632126, AA991269, AA552172, AA452977, AI032294, AI023445, AA502369, AA452992, AA77053, AW026878, AA452854, AI401110, AW008913, AI186769, AI672668, AL079826, AA868216, AA428130, AA527466, D60193, AA927983, AI364308, AI220907, AI668901, AI685820, AA236629, AA127786, BG057425, C14825, AA989539, AI419950, AA541273, AI695610, BF792826, AW503283, AI525510, AA374931, AW206263, AI394097, AI910623, AA127687, BE253223, AA455557, AI916665, AA887800, AA452835, AV756074, BF337291, AL042694, AV704232, AL042538, AI432644, AW405497, BF812963, AV760560, AL042853, AL042377, AI582932, AI866820, BE047915, AI433157, AI866469, AI355779, BF811804, AI889189, W37242, AI491710, BF343283, AW151136, AI590043, AI538885, BE883591, AI801325, AI500714, AI872423, AI537677, AI500523, AI859991, AI500662, AI888661, AI581033, AI860003, BF342223, AI521560, AW511921, AI923989, AI284517, AI539800, AL079960, AI500706, AI494201, AI815232, AI539707, BG029667, AI284509, BF970652, AI890907, AI554821, AI866465, AI539771, AI648567, BF811802, AW611588, AI538850, AI690946, AI866573, AW172723, AW858243, AW151979, AI539781, BF338002, BF109506, AI805769, AI434242, AI436429, AI623736, AI866786, AI610557, AI242736, AW827115, AI828574, BG252929, BF812961, BF815930, BE897632, AI371251, AI500659, AI887775, AI491776, AI445237, AW151138, AI582912, AI889168, AI440263, AI633493, AI889147, AI371228, AI440252, AI434256, AI887499, AL045943, AI284513, AI559957, AW089557, AI521571, AI469775, BE537531, BF030996, AI866510, AL046137, AI866461, AI515375, AA948539, AL047422, AW020592, BE886728, AL039390, AW827289, BE895585, BF812438, BG110517, BG027628, BG180273, AI923046, BF676355, AL046595, AV762619, AA641818, BE796673, BF812936, BE536058, AW673679, AL048482, AC005522, AL391122, AC007383, AC020910, AC007390, AF001552, AL354861, AC010137, AL031274, AL139099, AL353745, AL135749, AC005902, AC087089, AL353625, AC002464, AL031984, AL138836, and AC008074.</p>
HDPVZ07	1242	897891	1 - 1325	15 - 1339	<p>BF794893, BF528477, AV726101, AI890191, BF590669, AW197500, AW051933, BG024915, BE670318, AA989050, AI652622, BF447720, AI968150, AW089773, AA701627, AA931239, AA864813, AI914055, AV646097, AV708676, AV646062, BE074869, BF841082, BF934574, BF934575, AI580744, AA323534, AI017130, AA931926, AA976815, BF366013, AA621535, AA043634, BF347990, AW206671, T06881, BF922278, BF922271, AA033736, BE930520, AW383773, AW383776,</p>

HE8PB56	1243	897898	1 - 2007	15 - 2021	<p>AW606263, BF841093, and AW151114.</p> <p>AL513926, AL513925, BE621616, AW960757, BE621361, BG033574, BE879071, BE409836, BE122868, BG166428, BE905399, AW998966, BF967614, BG111599, BE565434, BE566493, BF965367, BE736870, AV658844, BE787412, BG032045, AV658848, BF967540, BF037996, BE910300, AW167175, AI740811, BF827073, BF825996, AI814625, AW372977, BF691552, AW379570, AW966626, AI830090, BF432483, BG165775, AA843925, BE811643, AW372976, BF382175, BE565581, BF982073, AW269507, BE563938, BF790484, BE876947, BE866746, AW379557, BF063395, AI378931, AI817634, BE973779, BF668149, AI858698, BF208111, AI828457, BF692349, AI694126, AW392769, BF246378, AI830092, AI422742, BE185114, BE567089, BE569169, AI400366, AI092688, BF669067, AI890963, BE348964, AW604280, AI679511, AI913025, AA253194, AI419413, AI811323, AI951020, AI022434, AI683943, AI525592, AA568164, BF028353, BE811634, AW675760, AW604289, AA688138, BF185347, AW630052, BE075317, AI452382, AI146463, BF382673, AI400768, AI288461, AW591233, AA906505, AI924309, AI167393, AA654360, AA186897, AI004583, AA775509, AI493331, AA614431, AI346389, AW604287, N62092, AA626034, AI023936, BE566929, BF572226, AW043643, AW273008, BE714766, BE140293, AI159711, AI921444, AA159816, AA482352, W38893, AW268508, AI970751, AV752826, AV651228, BF208866, BF840505, AW627852, AA588751, BE710423, BF184750, BE140199, AI077673, AA016243, AV658613, AA586975, BF675470, BE568879, AI985699, AI587086, AI860660, AI475132, N95055, BF475684, AI075057, AW274617, AW304099, AA160381, AA506029, BG119917, AW238652, AA086218, AA482254, AI436339, AI291597, H99748, AI278514, AW510468, AA610151, AW999091, R63720, R70906, AA471074, AW472934, R77169, AA079633, BE714760, BF240062, AA480373, AA468385, BE140282, BE737195, AW302595, AW806670, R82584, AI446687, AI283412, AI816752, H97740, BF840503, AA932817, R82585, W93394, AI682734, AA844033, AV682749, AA639961, AI880674, AW104925, AW261859, H21696, AI291596, H01942, AI168626, AA935864, AA580370, AW873776, AA258741, AA618219, W93362, AA258377, BE814374, BE218377, AW238247, AI190841, AW604657, BF082736, BF345003, BE934633, BE181669, AI091676, AA328654, BE544155, AI932899, CI7106, BF588467, AA297487, AA159815, BF211913, D79077, AA158761, BE710924, AW134560, BF326845, W79646, AV656657, AA296799, BF212328, AA159710, R63767, BE566272, R70905, AV657130, AW673433, AA159565, AW999382, AI472890, AA298549, AI492053, BF130354, BG107992, AA016203, R70993, BF208278, AI811530, AA469417, BE567023, BF812789, AA076609, AA468424, AX013182, AJ251830, AL023582, AF317550, AF249870, AL355362, AF251009, AK027096, AL389935, X70685.</p>
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HCBBF02	1244	897932	1 - 2587	15 - 2601	BF718797, AL530914, AU122015, A761694, BF038798, AA449050, BF975260, BE735899, AU134674, AW968498, AV684895, BF203871, AV684924, AV683742,

HE8TB14	1245	897937	1 - 2864	15 - 2878	<p>AW131552, AA776474, AW401753, BF974159, BF244139, BF829908, AW968675, AI021890, BF829004, BF828312, AW239446, AV698851, BE762877, AW960634, BE939298, AA116132, BF082209, BF829026, AW408327, AW451927, BF569686, AA036712, W22022, BF082207, BE939304, W45195, BF306015, AW631461, AA805537, AV710898, W56021, W79663, AA218662, H14227, BF350111, H30465, BF341081, AA040473, R14799, H25817, W22981, BF829355, R47459, T11517, AA358781, AA338759, H20744, T93787, Z42948, T33501, BF082994, BF828305, AA905111, R02426, AA545751, AA034333, AW374532, T31905, BE927112, AA333215, AW374660, N86776, AA249082, R02324, AA366427, W19151, AA334888, AA094393, BF033060, AL530913, R58414, T93832, N88847, AI188455, R45852, N88499, AA248097, AA094034, N56337, AA853613, AW131456, AA282656, BE708597, AW770118, AI097214, AW009452, AA480917, AW574571, BF094247, AI762159, AI479963, AW381449, N53121, N54405, AI335977, N31953, AW381451, R58270, AW081547, AW027335, AU147719, AI138490, AI129620, BF828881, AI129265, AI917872, AA095396, AI051106, AA761562, AI309628, AI034375, AA844148, AI074132, AI471599, N56158, AI032728, AI339926, AK027232, AX048079, and AK023425.</p> <p>BG166696, AW167360, AI267409, BE771015, AW964621, BF724809, BF116223, AW957228, BF513241, BE044455, BG028972, AW341018, BE717076, AI741238, AW205267, AA446366, BE716007, BE770995, AW967837, AI631041, AW068733, W38381, BG055388, AA631768, BG109533, AI678459, AI190188, W22773, AI298033, AI185111, BF109466, AL121396, AA825376, R51682, AA322968, R17294, AA326583, D51829, AA319660, H52339, W40456, AA322218, AA322915, AI884382, AA333546, BE246888, AW888726, AI817750, BF354697, AI694949, BF110569, T71507, AA057393, BF795799, AW968859, AI559589, AI272250, AA332395, AA909847, AA491176, AA339517, AA868436, AA028178, AV749029, AA101311, AI472353, AW236635, AI701159, AW661978, BE974135, Z44341, AA027301, AI499254, AW850031, AA027305, AW605429, AL044855, W07057, BF803712, T39302, AA636080, BE882592, AI795880, BE247681, BE769002, AL044038, AA923313, AW952401, and AB007930.</p> <p>AU133538, BE312889, AU117464, BE743205, BF689738, BE903831, BF982377, BE260664, BE261205, BF797573, BF206958, BE543465, BE313854, BE261633, BG180460, BE903131, BE313739, BF751473, AA195176, AW956388, BE386393, BE250817, BE410483, AW673389, T74083, N77796, R94656, T86367, BE799343, R20378, Z44821, BE141418, AU128632, AW292756, BE542704, Z44796, R36742, AL040203, F05149, R17945, T32211, BE727543, BF360245, BE407445, F12532, AV747894, BF349518, BF690283, AA309174, AA135353, BE251320, AI283551, BF814397, AW750971, AK025999, AK022940, AK024657, and AK000926.</p>
HHEQF50	1247	897970	1 - 617	15 - 631	AA350429.

HOSAY56	1248	897979	1 - 1293	15 - 1307	AI949910, AV716802, AW242656, AV716725, AI400631, AA418441, AI338670, AA446401, AA677149, AV711676, AI333747, C01555, AA380065, AA700481, AF067800, AI333332, AF109146, AF200738, and AC006511.
HOGEA82	1249	898097	1 - 1931	15 - 1945	AW603958, BE514890, BF819737, AW084511, BF772865, BF819736, BF883707, BF819740, BF819735, AI921127, BF827017, AW603961, AW081362, AI826371, BE047831, AA633240, AA573892, AW438692, BF819488, BF819602, BF819738, BF819733, AA670097, AA746062, AA773277, BF822599, BF819739, BF819590, BF883124, AW850118, BF821487, AA527939, AA101930, AA132986, BE827167, AA551538, AA101929, AI827670, AI566178, AI279935, AI991843, AI624645, AA132631, BF822589, BF823653, BF773151, AI911191, AW603959, BF773143, AA135196, AA972356, AI288048, AI566277, AA133085, BF803415, AA936755, BF851703, AI803847, BF822577, BF822628, AW997240, BG002642, AW752282, AW997219, AA987392, AI925474, AA336198, AW167866, AA135276, AI884517, AI432597, AW351818, AI690524, BF921923, AI866644, BF819734, AI561306, AI591335, AA570337, AW814683, AW242240, AW351801, AW750746, BF921927, AA366320, BF921922, BF821533, AI914681, AA535954, BF773142, T24909, BF821500, BE327605, BF773137, AA132448, BF821663, BF921918, BE143260, AW850138, AW850422, BF928797, AA534508, BG034554, AI929108, AW161098, BF752892, AI133741, AA629936, AI365256, AL110306, BF830213, AI815239, AW084097, BF828245, AW020455, AI333638, AW020592, BF913569, AW022494, BF813177, AI610645, AW020288, AI469516, BE965481, AI886055, AW021588, AI254727, BF764516, BF154735, BF764534, BF753056, AI677797, AW130829, AA207067, BE971692, AI499974, BE904809, AW827285, AW022542, AL138388, BF811808, AL042382, BF968959, AW089006, AI343091, BF749516, BG106858, BG058039, BF924884, AL041220, AA731026, AL035847, AW168791, AA806719, BF526933, AW806761, AW131994, AW081917, AI473434, AI860697, AI873638, BE906419, AI358107, AI630947, AI805769, AI250627, AW078689, F26535, BG114432, AA768046, AA830821, AW022102, BF819346, AI628273, AI434242, AV681965, AA514684, AW858254, BF892007, AL513585, AV733448, AI002285, AI247298, AI553669, AV710937, AV743129, AI471548, BF766527, AI560806, AW900453, AI244380, BE011885, AW085786, AW265004, AI863047, AW827249, AI799233, AI360195, BE974031, AW148303, AI887775, BF794025, AI249946, AW149876, BE964497, AI446405, AI559863, AV746791, BF343205, BF814449, AW999906, AW268962, AW002698, AW025279, AW827201, AI452857, AW235482, AW083804, BE909521, AI364220, AI951222, AI696626, BF816031, AI096771, AI587489, AI887139, AA493923, AI927233, AI589993, AI950973, BF037484, BF773282, BE538466, AW827289, BE393551, AW078729, BF817746, BF814429, AW055252, BE279800, AI472536, BF915316,

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HHFJV91	1250	898152	1 - 1294	15 - 1308	BF590328, A1273419, AL529541, BF930216, A1096740, AA041295, AA041399, A1418107, AW751573, AA041347, AV721082, AA888485, AA558031, AU143384, AU160484, AK024046, and AC007739.
HMACM2 9	1251	898193	1 - 1061	15 - 1075	BF343916, N30858, BF438499, AW517119, AW974158, A1301873, A133244, AW304912, N50741, AA044688, A1148515, A1133297, A1991673, AW072019,

HDPLG70	1252	898235	1 - 1899	15 - 1913	AA133495, AA115735, AI648557, BE044046, AI198313, AA569871, N41388, T69995, Z20305, N55062, AF213457, AL133404, and A74711. AL520900, AL520550, AL520551, AL521649, AL520901, AV704088, BG029889, BG120878, AW372721, BE264987, AA779652, AL037829, BE906201, AL044300, BG170969, BE782595, BE891253, AL037830, AW372704, BE768930, AA722880, BF724791, BG104612, AA447813, N21569, AI168324, BE349318, BE047392, AW131642, AA478642, AI590628, AA292897, AA410845, AI829611, BG254734, R52846, AA447814, AI142945, AI142943, AA252189, AI359892, AA974206, BF508776, AI190425, BE350039, AI085888, D59872, AI446645, AI335769, AA861454, AI268764, AA776515, AI077663, AI806892, AW083118, AA554318, AI439022, AI373036, BG164250, R66420, AA302641, W73952, N42730, AA594115, AV683614, AI249488, AA936827, AI917956, AI367631, AA156886, AW511599, AW151261, BF915540, AA235619, W77995, AA252188, W73178, D59873, W73457, AA678939, BF767379, AW960535, AA447665, AI050013, AI433148, AI693776, H43132, W93317, BF872750, AI868651, BE907089, H42365, AI215882, AA383684, AA843578, AA479185, H84184, AA421010, AA766077, BE171426, BE171433, C21518, AI274524, AI015576, F21903, BE171427, AA625709, AA535245, AW265759, AA927039, AA303411, AI684069, AA339998, AA356903, AA325207, AA811142, AW372719, AW239545, AA401731, AA742390, AA336082, AW081250, AA433985, AW372678, AA603705, H84185, AA157195, AW372679, AI910669, AI682063, AL044011, AW273621, AA827896, AW170714, AI028476, AA496243, AI582763, AA916824, AI057210, AA768150, AI440289, AI721078, AA634528, AA621271, AA776421, AI051711, AI287476, AW303838, AI636557, AA961201, AA815460, R06079, AI076520, AA773592, BF736165, BE171275, BE008133, AI222486, T24558, AL521648, AV726846, AV704757, AV706824, AV705873, AW963450, AI525633, and AI369290. AL517391, BE902734, BE898760, BE734218, BE898456, BF969683, BE741858, BE740173, AW411437, BE798298, BE787731, BF207078, BE314398, AI953080, BF206749, BE312960, BF983948, BF735902, BE272107, AI755152, AI085362, BF678960, BE292874, AA402892, AA156214, BG255037, AW006183, BE269007, AW953338, AA813449, N29136, BE739234, AI361967, AA542904, AA738475, BF571520, AA948078, AI278491, AA102825, AA314817, AA476582, BF438195, AA282290, BF303733, AA428795, BG109160, AA608565, AA057850, AA631291, AI199707, AA102826, N42950, AI627467, AI499849, AA401361, AI814330, AI143537, AI421793, AA402059, AA889293, AI310494, AA101640, N29804, AA828527, AA125896, AA602166, AA405320, AA427673, AA027054, T72902, AA125895, AA101639, AA605034, AA330261, AA398667, N49925, AA351311, AA713830, R95693, AA505799, H56340, AI914562, AA846244, BF437539, BE082341, AA749355,
HABAD39	1253	898401	1 - 1781	15 - 1795	

					AA026849, T91306, BF825513, AI186477, AA862567, H61737, H97794, AI372913, AA035513, Z39863, BE672814, Z42286, T30289, T27274, AA035025, AW407052, BF083096, RG3591, AI276953, BF743917, AA94532, H61086, AA448905, H56341, T90109, AI341335, AV751344, BF000638, AW394095, BE326910, BF825465, BF088799, AI676051, AW188930, R32027, AI183869, BF745823, Z38515, BE715355, F09086, AW369327, R95692, AL517390, R42296, R32080, H61658, R63539, AA046515, BF745825, T05374, AA188821, BF744250, BF940037, AA188881, AA045483, BF059204, H61951, AA291534, BE886301, AU077011, U17343, AF141882, and I89947.
HKAKC86	1254	898524	1 - 811	15 - 825	BE563611, A1028704, AA758208, AI743546, BF028445, BE879604, AW971745, AW804686, AW392670, AL119497, AW861944, BE695785, AW604723, AW858526, AW858525, AW877209, AL119457, U46341, BE705903, AL119335, Z99396, AW384394, BE705906, AW861889, AW577135, AW372827, AW858455, AW363220, U46347, AL119319, AL119443, AL134533, AL119324, AL119363, AL134902, AL119484, AL119341, AL119391, AL119444, AL119355, U46346, U46350, U46351, U46349, AL142132, AL119483, BF868697, BE705905, AL119396, BF868684, AL134531, AL134528, AW604726, BF868687, AL134920, AL119439, AL119522, AL119496, BE705904, AL042614, AL119399, AW861954, AL037205, U46345, AL042975, AL134538, AL042965, AL119418, AL042450, AL079683, AL043029, AL042544, AL042970, AL042542, AL043019, AL042984, AL043003, AL042551, AL119464, AL119488, AB026436, AR080280, AJ251859, AX030435, AR054110, A81671, AJ279014, AR060234, AR066494, AX046357, and AR069079.
HUKEP18	1255	898588	1 - 852	15 - 866	AA203189, BE672200, AI057441, AW139922, AA719156, AI653844, AW104223, AW593290, AI208345, AA969188, BF886843, and AF100707.
HL2AE66	1256	898739	1 - 1098	15 - 1112	BF794010, AU118289, AU137988, BE622368, AW610165, BF346601, AV762918, AW393434, AW880979, AW364631, BF375671, AW385620, AA343317, BE832861, R70298, H44267, R71697, BF925881, AW393440, AW610168, BF375691, BE843942, BF376968, BF375683, BF375703, BF375681, AW796249, AW364623, AW393437, AA781867, AW385613, U25890, BF991525, AA337569, AW960792, BG014480, AV762940, AK001005, AK002056, AC005840, and AC006064.
HHGDQ67	1257	898746	1 - 1881	15 - 1895	AV728436, AV693005, AV709635, AV687176, AV703125, AV685688, AV701198, AV725989, AV650367, AV729411, AV716834, AV705555, AV645778, AV703970, AV745573, AV727314, AV707149, AV692972, AV725431, AV704269, AV726480, AV755534, AV726559, AV734181, AV702787, AV707117, AV706910, AV729017, AV734855, AV702984, AV724987, AV727103, AV707088, AV705234, AV701538, AV703591, AV704974, AV707948, AV734426, AV702869, AV728459, AV728715, AV656240, AV701728, AV733212, AV707783, AV702954, AV733296, AV733813, AV725074, AV706183, AV734581, AV709407, AV647654, AV734568, AV707690,



AV727723, AV733090, AV707628, AV709356, AV729357, AV733901, AV733867, AV733247, AV701783, AV706851, AV703453, AV702537, AV709935, AV702498, AV702026, AV707798, AV761726, AV702427, AV704592, AV728270, AV726505, AV726067, AV652808, AV652156, AV728289, AV707686, AV729129, AV713025, AV706104, AV701611, AV704304, AV705504, AV734389, AV702409, AV702696, AV703012, AV704924, AV713243, AV706683, AV732025, AV707171, AV702222, AV709514, AV704611, AV705416, AV759059, AV726392, AV661744, AV706234, AV725907, AV729983, AV703862, AV732974, AV706724, AV733222, AV733103, AV729220, AV706746, AV702798, AV652547, AV725387, AV706357, AV725369, AV733588, AV706035, AV706527, AV705047, AV707685, AV733439, AV659189, AV756330, AV734730, AV759270, AV706453, AV695520, AV703417, AV763786, AV651075, AV708809, AV734272, AV735115, AV705263, AV704279, AV702671, AV704660, AV725514, AV727576, AV727355, AV728872, AV706891, AV728884, AV734524, AV755382, AV703436, AV707882, AV728255, AV690751, AV703367, AV733049, AV706989, AV708320, AV707589, AV701499, AV729219, AV701560, AV741227, AV726830, AV694787, AV658332, AV760611, AV704116, AV701496, AV646736, AV705266, AV740894, AV717107, AV726624, AV710646, AV702637, AV725927, AV705024, AV732002, AV706047, AV727932, AV733607, AV701961, AV714286, AV727347, AV725386, AV759352, AV705525, AV653845, AV727029, AV704981, AV710761, AV733704, AV728777, AV705655, AV725152, AV706220, AV733258, AV702792, AV742732, AV703232, AV703505, AV704605, AV646946, AV702581, AV705662, AV762571, AV760049, AV706318, AV734610, AV705299, AV706662, AV682643, AV706814, AV725281, AV705684, AV704481, AV681900, AV728546, AV705189, AV725920, AV706889, AV701410, AV762683, AV687909, AV705343, AV702958, AV704916, AV755722, AV707639, AV709025, AV699156, AV759475, AV726738, AV701626, AV705020, AV646675, AV733382, AV725043, AV731759, AV706394, AV658362, AV709932, AV709897, AV701707, AV707510, AV761915, AV758259, AV704757, AV655096, AV709549, AL136303, AX020190, AR017907, AX035462, AR088705, AX047064, AR091393, AR079804, AX008555, AX009712, AR062871, AX026824, AX035980, I13349, AX032758, I44681, A91965, X81969, AX026823, AR062872, AR062873, AR038855, I66485, I66487, A20702, A20700, A43189, A43188, AX047063, A84772, A84776, A84773, A84775, A84774, AR067731, AR067732, A58522, A91750, AX047062, A25909, I19525, AR070327, AR008429, AX006816, AX001322, AX009487, A85395, A85476, AR093385, AX028305, I18895, AJ244005, AJ244004, AX001082, AX021518, AR037157, AJ244003, AX020191, AX006825, AX006822, AX006826, Y16359, A98420, A98423, A98436, A98417, A98427, AX042372, AR054109, AR093392, AR096545, M28262, I48927, A18053,					
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HHFJS83	1258	898792	1 - 1789	15 - 1803	AL517134, AL524051, AL517135, AL537535, A1361222, AL537534, BG120134, AL52423, BF688163, BG150261, A1361218, BG168891, BE868208, A1818146, BG168918, AW955091, AL044002, BG167519, AV719782, AW510853, BF216510, BF037045, AA449562, AL515196, BF030580, BE885418, BF699219, BF680792, AI937067, BE927666, AW292803, BF335422, BE549610, BF793793, BE927669, BF674861, AA620750, BE881703, BF672590, BF111213, A1809804, BF668534, AW444975, AI937064, AL044003, BF085327, AA643669, AA314350, AW571754, BF085414, BE927615, BF367442, A1333293, AI027392, A1870371, A1268405, AW804029, AW804094, BE814966, BE004566, BE814989, AW804038, BE178594, BF381744, BE814978, BE694316, BE825418, AA523074, BF516003, BG150351, AW804040, AW804031, A1140675, BF310866, AW804096, AW935907, BE815035, BE273207, N51364, A1159864, AI949007, AI279860, AA449305, BE178632, W52337, AI912517, N66531, AI056498, BF085618, A1344560, BF217506, AA908864, A1571128, W48833, AA448734, AW887696, A1356775, W52594, AW954918, BF085472, AA515676, AW102597, AI825137, BF197164, BE004562, AA845306, A1289220, BF689123, BF433188, AA084404, BE178588, BG107076, AA448757, W49814, BE178649, H12900,

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	1259	898943	1 - 3126	15 - 3140	<p>AK000083, AK026784, AF111847, AF116691, AL359618, AF113013, A08909, AJ238278, AL442082, AF078844, X63574, AL359941, AL049314, AF130059, AL442072, AK025484, AL110225, AL049466, AB052191, AF111851, AF207829, AF125948, AF260566, AF314091, AL050138, AK026542, AF130066, AL096744, AF146568, AL117394, AR011880, U00763, AL137557, AF017437, AB048954, AL359615, AF079765, AK027113, A65341, AL049300, AL049382, AF119909, AL117585, AF130087, AF242189, AL133113, AK026533, AK025967, AL050024, E02349, AL122098, AK026592, AK026642, AL137538, AL137550, AB047904, AK025414, AK026534, AL137283, AK026353, AK000323, X72889, AK024588, AK026504, AK026647, AF183393, AK027204, AK027164, AL353940, U91329, AL137526, AL049464, AL137271, AK025491, AK000718, A77033, A77035, AF116610, I33392, Z82022, AK025524, AK000652, I03321, AF118094, AK000432, AF177336, AK026532, AL049283, AF175983, AF116654, AX026824, AX026823, and A58524.</p> <p>AU132597, AW375619, BE147950, AW375590, AI954621, AW362044, AW846423, H98087, AW205215, BG116625, AW754108, AW205991, AI361588, AW193731, BG115317, AA588837, AA534307, AI631442, AW291638, AW846522, AW846520, BF997465, BF997460, AW846509, AW846513, AW408128, AW751986, AI097266, AA731997, AW957659, AW965952, H89823, R98300, W01922, AI656446, BE612963, BG115275, AW500884, AW846344, AU123814, R98059, AW968355, AW972093, AW968356, AW968729, AW972091, AW972092, AW969229, AW971740, AW972090, AI432644, AI623302, AI431255, AI431337, AI431351, AI432654, AW128900, AI432658, AI432674, AI432661, AI431346, AI791349, AI432675, AI431353, AI431347, AI432653, AI431230, AI431328, AI431354, AI432655, AI431310, AI431312, AI431241, AI431345, AW081103, AI432677, BE672759, BE672774, AI431254, AI432651, AI432647, AI432665, AI431357, BF448552, AI432673, BE672745, AI432649, AI431243, AI492519, AI431330, AI432672, AI431248, BE672719, AI432662, AI432676, BE672767, BE672749, BE672748, AW128846, AI431340, BE672792, BE672738, AW128897, BF589777, BE672732, AI432664, BE672742, AI432650, BE672744, BE672743, AI431307, AI431316, AI492520, AI432643, AI492509, AI431751, AW128884, AI432657, AI431352, AI431247, AI431356, AI492510, BE672644, AI431308, AI432645, AW129223, BE672626, AB006624, AC018673, Y17793, AX030435, AX030436, AF064854, AR071207, AF019249, and AF048686.</p> <p>AV722410, AW960074, AW956729, AW183039, BF107215, AA046671, AI708530, AA081351, AA046747, AI453527, AI151441, AA682494, AI342481, AI480375, AI470227, N69434, AI091530, AI087965, BE439808, AA693935, W69477, BF940071, H69328, W03259, AV733213, W03670, AI032588, AW293109, AA923465, AI052329, AA693582, AI470914, AW961536, H57840, AA463325, AI160641, AA693904, D63041,</p>
HSUMA53	1260	899099	1 - 2355	15 - 2369	<p>HHFN170</p>

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HLHCH09	1261	899172	1 - 1758	15 - 1772	BE563419, BE907794, BE563484, BE562400, BE743983, BE740414, BE744931, BE561172, BE867597, BE561159, BE728270, BE396947, BE562032, BE549277, BF916758, BE743617, BE250039, BE562362, BE272401, BE746660, BF916759, BG109047, BF970916, BE568812, BE974183, BE541095, BE871927, BE698579, BE871269, BF196344, BE698577, BF037459, BE698578, BF818581, BE698576, BE698574, BF916525, BE305089, BE709697, BF816476, BE866320, BF676007, BF132539, AW804494, A1312113, BE709749, BF914938, BE927878, A1979207, AA741250, BF677728, BF770846, BE792267, AW009598, BF818090, AW952036, BG123012, BF676772, BE268930, A1590808, N20044, AW192453, BF820875, AA152150, BF835354, BE866069, A101561, AW583700, N28398, AA483522, BF846233, W76302, BE162549, BE709576, T40695, A1241578, R72982, BG013078, AA224590, BF818208, T87045, BF033572, BF834943, BE241748, BF836755, A1955238, BG010167, R28222, R02633, BF818279, BF803095, AA244018, AW338261, BF770534, T39606, AA304161, A1925871, BF839692, BF868424, T86963, A1864718, AA227408, A1333843, BE350662, R27969, AW994103, T39607, AA215609, T84016, AA149993, AA244075, AA101562, AW190875, AA101519, C17760, AW510529, BF825235, AA101520, AA404390, AW752957, T73746, BF133227, BF825377, AW996633, A1935684, BF353664, A1304788, A1093487, A1263270, T84017, BF871808, BF353770, R01692, AA641435, BF811982, BF871973, A1280307, BF771639, AA642887, BE006776, A1261914, A1928406, A1193265, BF764560, A1469580, AW999404, BF813934, A1632044, AA359412, A1002582, AV688621, AA626769, BE179555, BF727086, BE561354, AV703327, BE560144, AF111713, AF191495, AF207907, AK026665, AF154005, AF172398, A91699, A91701, AF111714, and AB017568.
HNTAP78	1262	899347	1 - 1712	15 - 1726	BG163314, BE612807, BE613258, AUI38191, BG025354, BE274779, BF036129, BG121605, BE891215, AW963297, BG115149, BF980307, BF508712, BE410290, BE881430, BE281331, BE645843, BE775232, A1073520, BE541432, A1620111, BE866612, R70223, BE538395, A1188918, BF091838, AW970295, A1956078, AW003168, BE466532, AA779854, AW237147, AA362079, R67130, AW753744, BE781625, A1439258, AW512289, AA811396, BE047217, AA362557, AA534948,

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HOGEN56	1263	899358	1 - 1060	15 - 1074	BF732391, BF115878, AW083349, BE857199, AA479495, AA479498, AA778607, AI858223, AI151232, BF514171, AW166236, AW328367, AI291374, AI567943, BE396202, AI560253, AI096849, BF732290, AW449943, BF515283, AA628224, N27280, AI191781, AA968918, AW006233, AA761741, R70251, AW405094, AW182126, AI245640, AI269136, AI738471, H00846, AA883484, AA286916, BF529836, AA018465, R38227, BF739796, BE905019, AW001378, H01229, R70296, AA831675, BE795173, AA962361, AA876230, BE882323, R38228, AW889978, and AJ250392.
HWLOU33	1264	899644	1 - 1944	15 - 1958	AL037051, AL040992, AL042909, AL039109, AL045353, AL039423, AL039128, AL045337, AL039386, AL038531, AL044407, AL038025, AL045341, AL037726, AL036973, AW235098, AL038837, AL039659, AL039074, AL039625, AL039108, AL039648, AL039678, AL039629, AL037615, AL037639, AL039410, AL039538, AL036238, AL036196, AL039564, AL036767, AL039566, AL036765, AL044530, AI142134, AL038983, AL039509, AL037727, AL079878, AL039156, AL037436, AL037295, AL037435, AL037027, AL037335, AL049018, AL040576, AL037443, AL037343, AL036167, AL038532, AL037323, AL040370, AL040529, AL037601, AL037049, AL036117, AL040052, AL044186, AL038822, AL041159, AL038838, AL039338, AL043814, AL043923, AL037742, AL039076, AL043845, AL040617, AL043868, AL041577, AL041459, AL044064, AL040294, AL041635, AL044037, AL042135, AL046994, AL040768, AL046850, AL045753, AL041752, AL045684, AL040625, AL041133, AL043570, AL043848, AL041374, AL043627, AL041523, AL041730, AL044074, AL041602, AL043492, AL040839, AL040510, AL043441, AL045671, AL046442, AL036158, AL039316, AL036132, AL046392, AL043677, AL043467, AL044258, AL040444, AL044272, AL040148, AL045920, AL044187, AL040458, AL046914, AL041238, AL045990, AL047170, AL040332, AL041142, AL044199, AL047219, AL044274, AL040745, AL040463, AL047064, AL040128, AL042096, AL040472, AL039077, AL040342, AL041168, AL040322, AL041186, AL039432, AL040119, AL044201, AL040285, AL040571, AL046327, AL044165, AL040091, AL045817, AL041131, AL040090, AL047012, AL047057, AL041292, AL041051, AL040168, AL041346, AL037341, AL041955, AL040414, AL043775, AL041096, AL039744, AL046330, AL041197, AL045989, AL037177, AL047036, AL040553, AL040253, AL040155, AL040082, AL039360, AL045857, AL040329, AL041358, AL043538, AL041163, AL041324, AL036725, AL041098, AL041277, AL040263, AL043941, AI906064, AL041278, AL040255, AL038043, AI634028, AI906040, AL040621, AL040149, AL040464, AL041227, AI905981, AL037021,

AL039150, AL040075, AL037600, AL037047, AL037643, AL039924, AL049069, AL045725, AL039915, AL041140, AL043612, AL036139, AL044162, AL036163, AL036964, AL043496, AL043537, AL036207, AL039643, AL041296, AL040193, AL037054, AL036133, AL041086, AL040238, AL037085, AV742695, AL038821, AL046147, AL038761, AL036970, AL041233, AL036679, AL134524, AL036152, AL041246, AL036924, AV738934, AV718844, AV743601, AV737584, AL045794, AV746102, BF294063, T24119, AV758878, AL039085, AL080031, AW063294, T24112, AL079852, AV701012, AL037569, AV742580, AV717989, AV717980, AV701782, AV718018, AV717988, AW013814, AV731085, AV13740, AX035980, I13349, A10361, A91965, A22413, I19517, A76773, AR096545, A35537, A35536, A92636, A02136, A02135, A04663, A04664, AR073846, I08051, AR062871, A84772, AX001322, A43189, A43188, A84776, A84773, A84775, A84774, A20702, AR067731, AR067732, A58522, A20700, A91750, AX006816, AR062872, AR062873, A11245, AR027069, AX026824, AX026823, A20701, A52326, A04710, AR093385, AR035975, AR035977, AR069362, AR069364, AR060673, AR060676, A49428, AR069366, AR069367, AR028564, AR096518, A08458, A08457, AR035974, AR035976, AR035978, AX027488, A00782, A02741, A14595, A18755, A25856, I12245, A13038, A29289, A49695, A49696, AX003207, AX020190, AR017907, A95051, AR080470, AR077142, A02712, A18050, A23334, A75888, I70384, A60111, A23633, AR007512, AX011024, A18053, AR095492, AX009712, I06859, AX012337, AR043601, A92133, AR083151, AX035462, AR085082, AR085089, AR085091, I40851, AR085079, AR085083, A60983, I60241, I60242, A02710, E12615, AX018504, AR035193, A07700, AX027811, AX027809, A13392, A13393, AX027813, AX030369, AX030368, AX023553, AX023548, AR027100, I28266, AX027812, AX027810, AX027816, AX027817, AX027818, AX027814, I21869, AR074365, AR088705, AR036903, A70040, AX009487, I66498, I66497, I66496, I66486, X73004, V00745, I19516, AX028687, E02221, E01614, E13364, E03165, Z96142, Y16359, I01992, I84554, I84553, AX003194, A51384, AC069451, AR009151, D78345, I66495, I66494, I66487, AX021518, AX006821, AX006825, AX006826, AR037157, AR054109, AX006822, A86792, AX042372, A98420, A98423, A98432, A98436, A98417, A98427, AJ244004, AR022240, A85476, AR038762, A85395, X68127, AX026821, AR031374, A49700, AR031375, AX001325, AX001326, AX001327, AX001324, A58521, AR020969, AR072501, AR025207, AX006820, AX035632, AX035630, AR072503, AX035631, AX035629, AX006819, AB037923, AX006818, AR072502, AR036905, A38214, AX033488, AX033489, AX033490, A44171, I56772, I95540, AR018924, AX033474, AX033486, AX033487, A63067, A51047, A63064, AR018923, A48774, A63072, A48775, AR068507, AR068506, AR015960, AR000007, AR015961, AR079804, A85477, A85396, AJ244003, AX046223, AX023549, A25909, AX023550, AX001082,				
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HPMKP09	1265	899668	1 - 1004	15 - 1018	AX006823, A98767, A93963, A93964, I63120, AX008555, A95052, AR043602, AR043603, A95117, AX023555, AX023554, AX023556, AX006817, A23998, AX023552, and AR095490.
HDPKJ19	1266	899677	1 - 550	15 - 564	BG121332, AW237733, AI568189, AA554834, AI340966, AA758744, AW390332, AW015171, BF222170, AA782013, BE242256, AA364840, AV657850, and DI4664. H87671, BE734498, BE539520, N47067, AW389158, AW389155, BE547149, AW377529, AA135001, BF805523, BE715066, AW970915, R91931, AA713751, BF828645, AF029308, AC019187, AC010150, AC008040, AC016968, AC007883, AC004889, AC004534, Z95116, AL133448, AL031407, AC006261, AL049829, AC003111, AL117377, AC008417, AL035662, AL031390, and AC008649.
HOEIZ65	1267	900050	1 - 521	15 - 535	BG036858, BE872087, BE905034, BF966497, BF213548, AW163384, AV706875, BE884477, BG036980, BF528079, BG170147, BF981877, AV722208, AV751764, AI751062, AW630274, AL513966, BF793048, AV690719, BF344397, BF038330, AL533472, AV726612, AL532845, AL513902, BE958330, AL533387, AW959013, BE261396, BF030728, BE879170, AV751883, AA149499, W04203, AV750016, AV747947, BE258679, AW016720, AW161328, BE251722, AV653506, AV699051, AA442305, BF337713, AA173092, AI207774, AW167798, AA477898, AA007157, AI796873, AV723355, AW341263, BG166195, AI926867, W28608, BF382704, AV691018, BG036997, BF839826, BF836373, AV696666, AW378695, AA313262, AV714056, AW362041, AA143378, AV723224, BF478034, BE148068, BE075924, AL047951, BE145397, BG168281, AV686365, AV686702, T30402, BF832816, BF352834, AV747996, AV748224, AV749009, AW362012, BF541480, T35344, AW953849, T07918, BE671421, BF445217, BE147213, BF836421, BE148073, BF840305, AW392273, T31755, BF349964, AU122955, H62690, BF834084, D45302, Z78352, AW378690, AW842356, BE870162, U46272, BE006400, BE148024, AW379013, BE006401, BF352941, T05330, BF836391, BF830577, BE006396, BE147860, H74077, BG169120, D56480, AV660165, AV660182, AV660030, AV660134, BE666945, BE147995, BF349976, F11245, BE932272, BE819798, BF836424, BE819804, T35254, AW947200, AW947196, AW947208, N89154, BF088953, AW947206, T30699, BF887330, AW378990, BE142665, BE147862, BF836379, BE707676, N84431, BE877821, BG004815, AW368285, BF887332, Z42416, N88369, AW368304, AW368287, AI908027, BF126354, AV750470, T34830, AI908025, BF914067, BF907228, BE151380, BF366488, BF880046, AA657545, C16730, AA527818, AW753162, BF130432, AI189911, AA486795, BE006405, H01825, W20229, AV749365, AW378679, AW368372, BF699510, AA156847, AV755863, AW381025, AA341227, AI923660, BG249023, AV724880, BE082911, BF350355, BF247240, BF670673, BE083087, BF830578, T93979, BF836420, BF965287, BF832836, AL037578, AA282493, AI355255, BF184469, T31525,



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HHASY37	1268	900177	1 - 980	15 - 994	AL521504, AL518185, AL520428, AF039237, AL533563, AL524052, AL517048, BG169623, AL538440, AL535012, BE392830, BE730889, BE252619, AL526545, AW967000, BE535931, AW605595, BE255566, AU119098, AW815343, BE299275, AA323642, BE873358, BE385297, BE838832, BE383274, AA040646, BF311654, BE795140, BE246779, BE074591, BF344085, BF310013, BE246783, BF754907, AA287125, Z44618, BE388949, BE299103, AW631482, AW386990, R13486, BE907835, T35835, BG165009, Z42306, BG166003, A1750912, AA416805, BE875997, BE467394, BE467376, D31575, BF091946, AC004596, AY007092, and AK021759.
HBXBC08	1269	900230	1 - 2010	15 - 2024	BE277178, BF980634, BE732783, BE744869, BF205108, BE734231, BE902466, BG171519, BF205706, BE793662, BE537334, AA772073, BG035960, BF307828, BE408797, BE251754, BE386724, BE252692, BE881757, BE379030, BF794278, BG178169, BE813829, BE742898, AJ403113, BE909061, BE732299, BE298431, AW327370, BF366342, BF983678, BE734758, BF307853, AV733932, AV734233, BE540445, AA342017, R15335, BE908194, AL043038, AW249080, BF988458, BF856355, AA397954, BG107935, AK026991, and AL136295.
HBXCF11	1270	900775	1 - 3141	15 - 3155	AL538256, AL534957, AL535890, AL536148, AL514132, AL519113, AL537613, A1770054, AV716482, A1028115, AW026538, BG104906, BE881866, BE177946, BG259395, BE253859, BG035496, BE178256, AV708287, BE874653, AV707742, BE178053, AV706986, AW390188, BE884935, AW965125, AV654614, AV731316, BE880413, BE177955, AV704940, BE909390, BE176352, BE439642, AL519112, AW936230, AW579713, BE178452, BF967799, BF966788, AW605194, AA054470, BE894828, A1064769, BE178133, BE178134, BF967364, BG000320, AW364485, BG114793, BE178445, AW364504, BF305052, AW605199, AW390182, BF967036, AW370691, AW936207, BG249152, BF213607, W52428, AA706727, BF306111, AW071923, BF983403, A1955161, BF965762, BF924196, AA573354, AW965985, AW896597, BF326895, AW999142, A1929568, A1584005, AW896608, BF350029, AW956693, AA903139, A1796770, AW235655, AW474685, A1697832, AA855136, BE620553, A1753263, AA946958, A1268463, A1679424, A1623809, A1801030, A1925466, A1570025, A1978755, A1422868, AW088410, A1471488, BE467552, BF184423, A1819906, A1028055, A1080517, A1859506, A1167983, BG036758, A1268444, A1359790,

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HKIXQ06	1271	900956	1 - 575	15 - 589	AA450131, AW967962, BF242862, H91351, AW403790, BF438052, AA262026, BF213839, AI480214, W38567, AW605392, AF205633, and AC006205.
HUFDB55	1272	900993	1 - 2157	15 - 2171	AW844103, AW844747, AI732436, AW753854, AA579242, BF341001, BE550265, AI954628, AI763064, AA053424, AI493412, AW134526, AA534814, AI967966, AA053043, AI992267, AI342785, AW969968, AI304542, AW572433, AW844696, AI913775, AI864467, AI733752, AW849201, AW849629, AW852393, AW852392, AW852395, AW852426, AW852464, BE927029, AW852425, AW603439, AW852394, AW852463, BF756667, AW852468, AW852467, AW376406, AW852466, BF747168, BF747199, AI134524, AW938701, AW852427, BF747181, AW603411, AI142134, AI038983, AW970540, AI037727, AW969624, AW69911, AW970070, AW970105, AI039643, AW968190, AI041347, AI039432, AI037443, AI037343, AW970020, AW970069, AW969631, AI037335, AW969625, AW970101, AW969621, AI037436, AW969778, AW970107, AW970118, AW972212, AI037323, AI049018, AW970093, AI038838, AW968150, AI041238, AI047012, AW968207, AI044125, AI047170, AI040463, AW968204, AI047219, AI044162, AW970032, AW970079, AW972154, AI040193, AW969885, AI040621, AI043538, AI047064, AI043496, AI040464, AW968212, AW969632, AW969664, AW973393, AI041324, AW976515, AW970076, AW969653, AI045817, AI041098, AW970119, AW969623, AW969782, AI040119, AI037435, AI041133, AW979228, AW976511, AI044186, AI041096, AI038822, AI040625, AI038532, AI040322, AW970531, AI041163, AW971954, AW969848, AI038761, AI047057, AW969916, AW975876, AW968338, AI040617, AI040510, AI040075, AW974805, AI044037, AW969803, AW979064, AW973772, AW969626, AI040149, AI041358, AW975971, AW971964, AI041296, AW969936, AI043467, AW976510, AW970969, AI041346, AW972736, AW975938, AI041086, AW969961, AW973808, AW973380, AI045684, AW969934, AW969794, AW969648, AW979294, AW973780, AI041246, BE185215, AW968340, AW973127, AI041197, AW969634, AW975157, AI041752, AI040576, AW979090, AW972156, AI043923, AI043814, AI043677, AW973241, AW970535, AI041635, AI040839, AW973219, AI043845, AW971965, AI041233, AI040294, AW968196, AI045753, AW969926, AW969756, AI043492, AI041602, AW970074, AW975173, AW975162, AW975255, AW973781, AW973164, AI040553, AI046442, AW975106, AI044064, AW975981, AW979238, AI041459, AW969768, AI044074, AW969677, AI040472, AI041577, AW975692, AI040444, AI041292, AW975046, AI040052, AW975154, AI041730, AI041523, AI043627, AW970095, AI041277, AW970013, AI041159, AW969874, AW971984,

					<p>AW969958, AL041374, AL041955, AW974993, AL046850, AW969651, AL040768, AW970115, AW973097, AW970096, AW974915, AL040155, AW975172, AW970023, AL043848, AW979054, AL043570, AL042135, AF147790, AK024856, AR096545, AR064707, AR066494, AJ276256, AJ276254, I18895, AR073846, AJ230935, AJ276255, AX003207, AJ230902, AX046357, AX047062, AJ244007, I05558, AR023813, I08396, AX006816, X07299, AJ238010, I48927, AR062871, A95051, Z32836, I84553, AJ276253, A92133, I84554, M28262, A02712, AR080470, AR077142, A18053, I06859, AR095492, AX009712, AX011024, A23334, A75888, I70384, AR043601, A60111, A23633, AX020190, AX001322, A18050, AX012337, AR083151, I60241, I60242, AR017907, I66498, I66497, I66496, AR062872, AR007512, I66486, A84772, AX023553, AR062873, AR085082, AR085089, AR085091, AX023548, A84776, A84773, A84775, A84774, AR067731, AX026824, AX026823, AR085079, AR085083, AR067732, AR088705, A58522, A91750, AX035462, AJ230951, AX047063, I15718, AX009487, A60212, A60209, A60210, A60211, A02710, E12615, AX018504, AR035193, A07700, AX027811, AX027809, A13392, A13393, A43189, A43188, AX027813, AX030369, AX030368, E13740, AR027100, I28266, AX027812, AX035980, AX027810, AX027816, AX027817, AX027818, AX027814, I21869, I13349, A22738, A20702, AR093385, A10361, AJ231009, A20700, AR074365, AR060234, AJ230867, I15717, A35536, A35537, AR038762, A11245, A02135, A04663, A02136, A04664, Y16359, AX033488, AX033489, AX033490, AX033474, AX033486, AX033487, D78345, I08395, A58524, AJ270780, AX003194, AX028305, AB043473, AR093383, I08389, A58523, I62368, AR031566, A85395, A85476, E03627, I66495, AX030435, I66494, AJ244003, AJ244004, AJ244005, I66487, A90655, A93016, I44681, I03331, I00682, I08051, AJ230972, X83865, A86792, AX021518, A98767, A20699, E14304, A77094, A77095, A11623, E00609, A11624, E00696, AR031488, I13521, E00697, A81878, I52048, A93963, A93964, A27396, I63120, AR069374, A95117, I49890, I44531, A11178, E01007, AR069375, AX006821, AX042377, AR037157, AR054109, AR091518, AR072535, A64973, AX042375, AR091393, AX032758, AR069650, AX001330, AX042373, E03813, A25909, AR095490, AX006823, AR079804, AX003206, AR095491, A91965, A24783, I44516, A24782, AR093384, AX008555, A70040, I66482, AR009151, I66485, I66483, I66484, E16678, AX004550, A82653, AX036660, AX036661, AR038066, AR027099, E16636, AX032992, AX032993, AR051652, AR072540, Y09813, AX042372, AR038855, AR093392, AR051651, E12584, and AR064706.</p>
HFPLY39	1273	901208	1 - 1878	15 - 1892	<p>AL534231, AL532581, AL532760, BG254686, BF970832, BF971123, BF978854, BG104688, AV701187, AW814788, BG030686, BF700138, AV726823, BF692081, AW814838, AV706719, AW814744, BE906108, BF668244, BF792095, AV700348, BE565178, AW392336, BF245582, BF211573, AW369758, BE934654, AW609730,</p>

					<p>BF695763, AW392335, AI654807, BG255650, AW376816, BF572978, BE565024, BG166816, AI676234, AI912807, AA977227, AW173531, AI686231, AW195022, AW848986, AI741281, AA209534, AI470151, AW206188, BF739938, AW118731, BE218839, BF110570, BE549791, AW376512, AA582181, H07011, AI653888, BF678021, AI911756, AI693642, BF447673, AW848793, AI094199, BF444989, AV747180, AI828188, AI040162, AW959854, AI609784, R11916, AW001801, AI669623, AI418152, AI261249, W86201, AI689769, AW998963, AI826215, AA558969, AA969834, BE771077, H10314, BF239957, AW615001, AI571030, AA593130, AA564340, AA576707, W86202, AI268784, BF700045, AI873726, H05460, BE326519, AI222858, AW510593, BG055321, AA313455, AI191319, T74710, AA928887, AW440358, BF768904, BF432222, AI648488, AW904441, AA214585, AI740709, F13055, F10647, F10302, AA082028, AA450348, BF375212, AA610116, AA410464, AW630261, R25727, W22687, AW510451, AW161865, AA364604, N29515, Z44533, T32004, BE771070, R40664, AW779529, H29792, F12693, T75297, AV749715, H27091, AI535998, H10315, AA938480, R39185, AI215974, BF372814, BF900359, R43583, AI216546, AW630172, BF154410, AA588670, H29791, AW515130, AI867260, AV747993, AA450349, N57459, BE771043, R75755, R95668, AW955723, AA410463, BF854584, AA507494, BF854645, N55955, T16886, BE694389, R40603, BF154793, AW139276, BF854417, R13124, BF854418, R14338, AA365742, BF854644, AA760957, BF854590, BE771082, AI908609, AA513040, AI216125, AW843101, R62471, AA211059, D45752, AF100759, AF120265, AK026587, and AK000631.</p>
HUFAY01	1274	901287	1 - 1982	15 - 1996	<p>AL518765, AL518764, BE740716, BE727421, BE901928, AI805720, BF035254, AI375187, BF973848, BF980889, AL522595, BG055142, BE889402, BG031833, BE790201, AI819851, AI740753, AI683950, AA733074, BE311621, BF683552, BE407271, BF224450, AL522594, AW885558, BF433514, BG059575, BF341341, BE856853, BF877859, BG150114, AL290688, BE467058, AI469346, AI247277, AI524822, BE551391, AW613187, AW290983, AA304833, AI097608, AI312775, AI042059, AA531503, AW629604, BE844029, BE302805, AI312779, AI633056, AA583309, AI284993, BE938564, AW380334, BF748600, AA533234, BF740458, BF062710, AI684618, AA604862, AA034045, BE150213, W88995, AI991473, BE062968, AI479280, AI433421, AW605985, AW605976, W89086, AW605971, BE881249, BG056761, BE880988, BF197438, AW605978, AI783763, F27867, AW605983, BF431527, BE300500, AI269336, AW732929, BE843923, BF847402, T98012, AW302358, AA770498, R11941, BF032382, AW207899, AW130747, AI078550, BF090281, AI826595, BE076400, AI453832, W00351, BE775286, AI280387, AA903189, T98091, AA302063, AI582432, BE165638, AW591805, BE302820, BF868920, AI624010, R37031, AW295319, AA432285, AW779775, AA371667, BG166892, AI364689, AI859212,</p>

				AA033787, F37362, AA428630, AI916395, AA468284, AA468249, BE092428, BF935622, AI281123, AW372592, AI498356, BF081923, AA705369, AA468208, BE779570, AI015985, AI432644, AI623302, AI431307, AI431316, AI431238, AI431323, AW081103, AI432653, AI431315, AI432666, AI431321, BF698217, AI432650, AI042729, AW858522, AW772685, AI047611, AW983701, AW968355, AI134524, AI042655, AI042853, AI432654, AI042533, AI431246, AI431235, AI135012, AI042931, BF343056, AI042488, BE879627, AI046356, AI042787, AI045891, AI043089, AI043166, AI042515, AI610411, AI043321, BE672759, AI045327, AI042745, BF726322, BF726868, BG032625, BF726234, BG106905, BE539580, BE875644, BE883591, BG167830, AI043152, BE885490, AI040207, AI866786, AI564988, AI042898, AI043239, BF341855, BG033776, AW058275, AI041862, AW149232, AI043091, AI440260, AI537677, AI494201, AI804505, AI815239, AI500659, AI866465, BF340067, AI815232, AI801325, AI866691, AI500523, AI538850, BE018334, AI887775, AI582932, AI872423, AI590043, AI923989, AI284517, AW194509, AI365404, AC008760, AX030435, AI133053, AI133049, Y17793, AI122101, AI133076, AC007458, E02914, AF019249, AF116691, AI133074, AI131955, AI133607, X66975, AI122049, AX040958, AI137292, AF183393, AK024570, E13998, X00861, AF113019, AI133084, AI133070, AX040974, E12579, AI049423, U30290, AF084644, AF084645, AF155119, AF119859, AI133608, A57389, I48978, AF124396, AR050959, AF082324, D44497, AI162062, U80919, U49434, AR083279, AF112208, AI022170, AI5345, AI162008, AB048974, A90832, AK027182, AF199509, AI133015, AK024546, X97332, E12888, X82434, AF148129, AI133655, AF102166, A70386, AI137463, AI049300, AF119875, AK027209, A27171, AI133072, AX025493, AF218031, X89102, I80062, Y00093, AF119908, AF182215, A30331, AB048964, AK026480, AI133640, AK026797, AI442082, AX046749, E08443, AI133599, AI355365, U89335, AK026389, S68736, AF111851, AF143957, AF130092, AB049853, S69510, AF100752, I48979, AI133051, AC004971, AI138976, AC012315, AI359618, AF056191, AI122110, AX016706, AI122103, U70981, AI157480, AI133080, AR015970, AF118070, AI133081, AI080110, AF111849, Y17607, AI137284, AI133077, AK025484, AI359620, AI389982, AI008706, I17767, AF314091, I09517, I40161, I91798, AI359941, AK026597, AK026164, AB047941, X59812, AK025798, AF119857, AF118558, S83440, AF208026, AC003686, AL009179, and AL445143.	
HAHCK43	1275	901386	1 - 1766	15 - 1780	BE741108, BE562785, BF853420, BE222910, BG253535, BE393668, BF215586, AW083493, AW364814, BE902074, AA888116, AW440785, AA837808, AU150860, AI922963, AW665244, AW339933, AI335975, AU148870, AW008506, AI278245, BE903725, C04905, AW182620, AW664019, AA587046, AW888964, AI082044, AA293743, AA155590, AA937213, AA985577, BE677337, AW070770, AI307135,

	1276	901421	1 - 1363	15 - 1377	<p>AI738945, AA631571, BG168071, AA293452, AA293367, AA394061, AI129229, BG150773, AA614317, AA459905, AA912994, T77956, W73545, AA129608, H48658, T56784, BF887488, R55255, AA886910, H49569, BF927775, T56785, AW469778, AI191193, AU135563, AA775904, AI698484, AA292341, Z44010, Z40062, H48491, BE222970, T99543, AI826173, BF884938, BE045480, AA852177, AA988337, AI955991, W31595, AW009439, AI381811, AU156137, F05090, R55256, F01344, AL530521, W73423, T99438, BF988088, AU125147, BE932823, AA293052, BF887474, BF128563, AA285248, AL530184, AI524670, AI982644, BE258888, AW605259, AW840701, BE266522, BE728844, AA155605, AI766741, and AK022937.</p>
HETHC61					<p>AW959307, AW510737, AW162943, BG149664, BF109891, AI590817, AI492171, AI168081, AA831769, BF513861, R25716, AA359492, BE711112, AW238299, R62460, AW379689, C02578, BF836799, BE048370, AW241754, AW243207, AI034221, AW998729, and AI355497.</p>
HNSME80	1277	901436	1 - 2144	15 - 2158	<p>AL519042, AL041512, AI467869, BE872575, BF691117, AI819953, BF590283, BF590356, BF216735, AI818938, BG169133, AU154066, AW952794, BF061587, BG253568, AU149303, BF665091, BF217445, AU153062, AI769146, BE856655, BF246345, AI346009, AW273046, AI818956, AI041737, AA704098, BF571609, AI305210, AI024481, BF109889, AI305206, AI754529, BG110714, AI379159, AA460602, AU125696, AA608730, AI333572, BF244360, AA461530, AI284854, N69958, AI942365, AA857186, AI347927, AA164468, AW339594, AA613573, AA669218, BF246880, AW368542, AA194165, BF448903, AV724660, AI282940, AI804448, AI375848, AA194166, AI474197, AA164469, AI039184, AV739028, AA356075, AI683316, BF569131, T10012, BE545239, BF218871, BF035458, AA236052, F08766, Z41800, T32159, T33888, AI802220, T05337, AA705349, AK024258, AB028961, U87791, AL137664, and AF087672.</p>
H6EDK67	1278	901529	1 - 833	15 - 847	<p>BE621805, AI740538, AI991063, BF968565, AW665241, AI816235, AA989369, AI816180, AW955914, BE880589, AI568003, BG058595, AI879047, AW337566, BF513795, AI815804, AI401701, BF680529, AA992003, AA887219, AA314893, BE790348, AI193891, AA991962, AI870871, AI129251, AA938974, AI937894, AI816312, BE620995, BE965457, AA417644, AA972057, AI816219, AA411565, AA984034, AI815497, AI493664, AA419548, AA410528, AA985561, BE327241, AI969199, AA234347, AA523589, AI201484, AW583860, AA738149, AW796566, AA639075, AA714943, AW796467, AA661984, BF378477, AW371214, AI373806, AV685470, D11909, AW796524, BF998677, AI698157, AA308942, AI220909, C21419, AI698146, AA165132, AA054834, AI420464, AA644345, BF809980, T81127, AI933854, AI015791, AW104613, AV750172, AI784278, BG259848, BF222330, AW796465, AA299888, BE084677, AI014584, AV721755, J05069, and AB022714.</p>

HMSCY51	1279	901561	1 - 2232	15 - 2246	
					BE742141, AI147040, BE899372, BE798880, BE728450, BE898463, BG036055, BG116527, BF035903, BE745866, BF981569, AI300527, BF983770, BG112873, BE513205, BE312862, AW954404, BE618141, BE395723, BE873567, BG178054, BG028619, BF984383, BE793517, BG112301, AA587377, AL526009, BF348244, BF037981, BG110999, BG054830, AW262596, BG026904, AI749037, BF968971, BE393230, BF344098, BF036816, BF063379, BF036180, AW249503, BG256893, BF037474, BF982694, BG248357, BE795630, BF805099, BE293247, BG231995, BE312166, AI754474, BE090335, BE257263, AL526063, AA833883, AI680852, AW957489, AI150184, BE263578, BE931598, AI928189, AA740785, AA451894, AI963804, AA745848, BG117900, AA037128, BG024075, AW615399, AA922673, AA480894, AW182778, BE719811, AI422459, AI362272, BE899052, AA480952, AV722562, AW250268, BE314685, BE303058, BG110401, BE836085, AA602363, AI356068, N36889, BE178980, BF439421, AA037508, AI832951, AW118884, BG056311, AW084887, AW401878, BF917245, AW614905, W70034, AA629610, AA635280, AW368704, AA452082, AI799103, H82753, AA831343, AA045097, AI885257, AW770259, BF940547, BE301334, AI369408, AI266141, AW340229, BE513415, AA047171, BF112113, AA994830, BE143228, AA687184, AA282268, AA838838, AI031734, AI262401, BF759403, BE674986, AI028014, N69029, BF854344, BE208015, AA522833, AI798549, AI360652, AI369135, AW514771, BE539789, AI400299, R66211, AW024945, AI982743, AI129681, AA780100, AA026868, T63572, H59917, AI380625, N24421, AA862874, AA620584, BG023931, AA114004, AA568994, BE304750, AA872075, H84444, H42030, T63497, BE933489, BE810852, AA114064, AA610253, AI865993, AI027712, BE348870, AI363863, AA622188, AA019035, AI281344, AA581941, AI285021, AI954518, AW375991, AI393720, AA887725, AI492724, AA297718, AW407782, AI350152, H99631, AA302917, Z44568, AI242981, AA024859, BG023781, AA600960, R18087, AA836524, BF894564, AA026867, AI217817, AW264702, AA031944, AI092794, AA024942, AI266633, AI961326, Z41705, AI521014, AA298499, H42029, AI720237, BE673180, N46163, U46275, AA530996, AA745626, AI079633, AI830714, AA282269, AA714572, AA297928, BF854346, BE873865, BF351017, AA057042, AA045009, AA039801, H28692, AI214663, AA714571, AA297503, R42980, BF891017, AI289504, AA810998, AW998750, BF374144, AW847201, AA915959, BF830907, AW407164, AA032064, H41001, AA782807, AI701301, AA947311, H59918, H83630, AA814257, AI285355, BE164318, AA251017, BE872218, BF062919, AW607356, H84443, AW979132, AW797252, T24665, AW751024, AX035212, AL137440, AK024622, AF002672, AL137555, AL049314, X65873, AL133049, AF090900, AK026631, AF106657, AK024524, AF183993, AK024992, AL137530, X66862, A27171, AL133072, AF116631, AF069506, AF218023,



HTXMM2 7	1280	901592	1 - 933	15 - 947	<p>AK026592, AF113019, AF119875, AK025424, AL137529, AL135396, AR081734, AY004290, AF267849, AF056191, I48978, AF013249, I32738, AF182215, AF260436, AF090943, AL049382, AL050172, AL137558, AF119894, AK025092, AF132730, E04257, U72621, AF143723, AL161964, AF287051, Z97214, AF116698, AK026542, AF116639, AF118070, AF038847, AF232009, AB007812, I09499, AL157431, AF115410, AL389957, AK025113, A57389, E12579, S53987, I89947, X63410, U92992, AK000476, A41575, AK024545, AF036268, AK000653, AF017437, AF113677, AF217966, AL080140, AF208850, S68736, AF107847, U90884, AF176651, AK027146, AF004162, E02221, AL122110, AL133084, AK025339, AF031147, AF175983, AK026504, AF119899, X99257, AL133081, AF159148, AF254119, AF061795, AF151685, U35846, AF081197, AF081195, AF111851, AF119909, AK025798, AL133557, AL117435, AL080129, AF116691, AF114170, AK000418, S36676, AF218005, AK000083, AF159615, AK025435, AL133075, AL137284, AL110228, AF102578, AL110225, AF207829, X81464, AF314091, AL359624, AB025103, AL137459, AJ238278, AL080127, S77771, AL122045, AF208026, X98066, AF118092, AL110296, AF116654, AL023657, AF108357, AL137533, AL137268, AF026816, A18777, S75997, AF130056, A86558, X54971, AL137488, AL137550, AF116688, L13297, S63521, AL049460, X80340, AL050280, AL122098, E01963, S69510, AL137660, AL389935, X93495, AF057300, AF057299, AB047904, M86826, A15345, AF100931, AK026894, AF145233, U75370, A08913, X63162, AK026749, AK027221, AL390139, AL050092, AF032666, I89931, Y10655, AL137657, AR075041, AK026583, AF119865, AK027103, A08912, AK025484, A08910, A08911, I48979, AR087170, AL117635, AF169154, A08909, AF113694, AK024588, AK027095, Z72491, AF076633, U95114, AB041611, AF112208, AF137367, AR038854, A08907, AF119883, AL136884, AK026494, AL359941, AK025573, A08908, L19437, AF130055, U76419, AL137560, AL133640, AL137271, AB026675, AF114818, AB051158, S82852, AB044547, AK024855, AF130099, AL137656, U78525, I91798, X93328, AF130110, X53587, S76508, A03736, AF104032, AL133665, I89934, I68732, AK026591, AK000263, AF013214, S61953, AL050015, AL122049, AF118064, X79812, AB048964, AF036941, AL050024, AL137478, AA887447, and R29356.</p> <p>BG107935, AA421156, AW263208, AW778811, A1860213, AW438684, BG178169, AA427665, AW467358, BG167807, BE909061, AA397954, AV740176, AW675564, A1348480, AW004828, A1129055, AW070768, AW068454, R42232, AW769032, A1800035, AW081957, A1695650, A1520752, AV734233, A1206299, AA935849, AA204944, AW769340, AV733932, AW248645, AW263189, A1656757, AW769555, AA342016, AA035137, AA576268, AA293754, AA361461, AW573223, AW135932, BF737443, BE742898, AA330688, AA503645, AA342017, A1917771, A1421042, AW007750, BG151170, AK026991, and AL136295.</p>
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HTXP061	1281	901690	1 - 1157	15 - 1171	BF035730, BF313196, BF701446, BE869380, AW794763, BE782604, AL046382, BF982786, BE958004, BE903867, AA009408, H00384, BF976631, AL526395, R35100, BE342872, R72960, T77525, AA318121, N57136, AA368236, R31846, BF771825, R13455, H27802, AW062921, AA512981, AW964791, AW367721, AA3404393, BF997760, AA053914, BG025980, R53894, AA018884, R85166, BF927366, H80784, AA018121, AA016154, AR079030, AF069307, AF081571, AL096737, AF116241, and AF080067.
HLWAM6 2	1282	902115	1 - 1293	15 - 1307	AL518805, AL518333, AL518968, AL535793, AL530587, AL515587, AL514800, AL515494, AL534633, AL532669, AL518527, BF981426, BF526011, BG259839, BF337531, BG250594, AL518080, BF530993, BG259340, BF343800, BF337154, BF347094, BF793276, BF346036, BE892843, BF527646, BF337868, BG025108, BF348083, BG034329, BE261745, BF526625, BF344474, BF339116, BE262889, BG033117, BF527712, BE893935, BF033885, AL518786, BG120349, BF345570, BE313071, BF341785, BF304377, BE782496, BE260138, BE312363, BE779190, BF724156, BG026556, BE909963, BF342586, BE618263, BF316097, AA291359, AI792419, BF950119, BF087469, AV722651, W39535, BF033260, AL036384, BF949074, AA682331, M78898, AA306383, BF838150, BF906852, BE314662, AW403222, H23306, H53246, W39534, AW161481, BE842849, BF840201, BF949007, T33857, AW900165, R35030, W52623, BF156037, AW295067, AA351621, T95800, N36204, AA349842, R66500, AA351491, AA158690, AA128062, AL518785, BF361858, BE839984, AW938099, BE247341, BG112672, BF724143, BG030156, R81530, W45233, BF337835, AV748402, AA300719, AV746692, AA318187, BF311257, AL518332, BF760391, AL518526, BF949306, BE835080, AA351343, AW603824, AL515586, T19717, Z41855, T32175, BF081178, AA339335, AW378580, BE171248, AW239998, AL518804, BF949302, R45827, BF927559, BF920837, AA332614, AA354300, BE763425, BF927560, BE247452, BF526148, AF272043, AF272044, and AB030199.
HFXLK46 HBMXXK78	1283 1284	902129 902144	1 - 1233 1 - 1470	15 - 1247 15 - 1484	T02924, A38246, A11524, and AR029497. AV714287, AI912618, BE222303, BE673348, AW020096, A1632584, A1690052, AW675741, AV707783, AV706183, AV728270, AV702427, AV706724, AV726505, AV725927, AI263803, AV702637, AV727932, AV706746, AV701611, AV659189, AV704974, AV709407, AV725369, AV702798, AV732149, AV730781, AV723449, AV730288, AV751921, AV753374, AV705020, AV704916, AI003550, AV658362, AV752043, AV731744, AV731313, AV704592, AV728777, AV662191, AV701320, AV731708, AV726067, AV751555, AV730547, AW023393, AV726674, AV755874, AV757088, AV731915, N51299, AV731977, AV731043, AV732002, AV731694, AV710534, AV746276, AV761270, AV714368, AV732353, AV728872, AV730165, AV730711, AV724987, AV732155, AV731275, AV729983, AV731759, AV732653.

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HE8TF48	1285	902236	1 - 2914	15 - 2928	
HMUAL57	1286	902291	1 - 1410	15 - 1424	<p>A1924533, BE047851, A1863101, AW088579, AW009943, A1659089, AA478318, A1821674, AL119457, AW089272, AL042544, AL119399, AL042382, BG032704,</p>

AL079794, BG168696, BG256090, AW149227, BF970990, BG113299, AW827206, BE171225, BG110684, BE910373, AI909642, AI273142, BG168646, AI499381, BF924882, BG120816, AW150578, BG168640, BF339322, BE048071, AW088903, AI564247, BG249582, BG026714, BE895585, AI890223, AL045266, BE968552, BF828567, BE047737, AI801544, AI802542, BF089711, AI610362, AI497733, AI539808, AL042628, AW877209, AW071417, BE895714, BG035511, AW129106, AI921248, AI349004, BG027280, AL079741, BG180034, AW827228, BG164371, BG031815, BF812933, AW268220, BF792469, AI270707, AI820923, AW087445, AL134830, BF341801, AI584140, AI475394, AI247193, BG113385, AI269862, BF971336, BF527014, AL039276, BF970449, AW827289, BE047852, BF338723, AI499263, BE876033, BG032208, AW827276, AI364788, AI345416, AI345612, AV682051, BF038131, AW082113, AL045500, BE887488, AW169653, BE904178, BF032768, AI800453, BE874133, AV732865, AW071349, BE047952, AI862144, AW083804, AI591316, AL036980, AI433037, AI623396, AI269205, BG251840, AL514929, BG252040, AI275175, AW059837, C16221, AV682333, AL040243, AL047763, BF968205, AI612885, AW190042, BF343172, AI800433, BE785868, BG164558, AI873604, AV708622, AI859511, AI537273, BG168549, AI433976, AI922901, AI274508, AI796743, BF915208, BG026428, BF795712, BG257535, AI636456, BE963035, BF971016, AI620284, BG110517, AI524671, BG260037, BG036506, AI349598, AI433157, AI284131, AI886753, BG252929, BE880182, AI648684, BG105895, BF812961, BE886728, AI539771, AI916419, AL042538, AA279293, BE621256, AI668893, BE875407, BE172767, AI633419, AI500146, BF792961, AI537677, AI538085, AV734591, AI500659, BE967147, BE879911, AV682264, AI801325, AI824746, BF812438, AI500523, AI868831, AL042551, AI538716, AI284517, AI857296, AI500706, AI590120, AI445237, AI491776, AW151138, AI632408, AL515375, AW301505, AI828731, AI702406, AI500662, AL036146, AW088134, AW302988, BG118199, AI633493, BE047863, AI648663, AI801152, BF726198, BF337043, AI559296, AI498579, AI684234, AI872545, AI862139, AW132056, BF968907, AV710608, AI621209, AI308032, AI280747, AI696612, BG058398, AI383919, AI890833, BG179993, AW946806, AI926790, AI520862, AI564719, BG036846, BF814335, AI889376, BG112718, BF812960, BF970768, AI784252, AI569579, AI468872, AA287231, AV681859, AL514819, BE620444, BE781369, BF055737, AI554344, AI287326, AA427700, BF816042, AI571909, AI619502, AI677796, AI872711, BF339594, AF118070, AL157431, Y11587, I89947, AF119875, I48979, I48978, AF106862, AK000083, X82434, AK024538, X84990, AF116691, AL390167, AL133640, AI242859, AL117585, AL049382, AF158248, AL389982, AK000652, AK026592, A08916, A08913, I89931, AR087170, AK026959, AF314091, AL110225, AK000618, AL133016, AF118064, AL133080, AB041801,				
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HWCAD8 5	1287	902684	1 - 1531	15 - 1545	BE256927, BE257400, BE255129, AW975981, AW975941, AW973821, AW973789, AW969694, AW979076, AW975596, AW971953, AW975626, AW976024, AW973397, AW973819, AW979090, AW979295, AW973254, AW975217, AW969698, AW969988, AW975952, AW972879, AW973762, AW969921, AW970915, AW979204, AW975592, AW974109, AW970896, AW979037, AW972783, AW971975, AW975650, AW975971, AW972871, AW975266, AW975049, AW972440, AW968338, AW979093, AW969772, AW970927, AW973777, AW979269, AW968148, AW972769, AW972799, AW974932,

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HUFD04	1289	903101	1 - 1635	15 - 1649	AL519891, AL524462, AL528554, AL522938, AL522937, AL528553, AL529656, BE798758, BF983928, BG257824, BG121754, BE513077, BE904608, BE891859, BE250848, BE549032, BE893592, BE785735, BE384544, AL524441, AW958027, BE882183, AL525221, BE512679, AI199103, AA604404, AI735406, BF109298, AA393099, AA191001, AA205313, BE867661, AW025239, BF445953, AI457327, AI421414, N52379, AI278017, AI720720, AI829849, AW004793, BE220525, N20562, AI033280, AI092515, AW299827, AA595242, N38928, AA885902, N21453, AI202803, AA236451, AI161131, AA568605, AI017854, AI937534, H48327, AI359411, H53775, AI080378, R61207, BE702135, AW079295, AA191126, AA664829, AA412120, AA296938, AA298748, BF743417, AI341364, BF742340, AV646502, BF743749, AI128992, N46499, AA234485, H69040, H48236, BF800105, BF743467, AV646612, BF743472, AA456724, AA931424, H75686, H75378, BE767348, BE767350, R64510, H60941, R61206, AL525220, BF762117, AI928767, AI254208, H60854, R26385, AI678568, AA298572, AA297167, AI206697, AA296840, AA917535, AV744530, BF700808, BF087607, AV736619, R65602, AA310892, H53825, H92760, BF742338, H75372, BF953770, BE073136, N72786, BF754905, BF696176, AI978889, AW001569, BG110519, BF825964, and AV646784.
HHEX015	1290	903309	1 - 892	15 - 906	BF793677, BG030159, BF968107, BF971167, BG034696, BG031029, BE256879, AL535052, BG113339, BG168461, BG166970, BF029990, AV710467, BG163707, BF184956, BE878076, BF571367, BF683278, BF677752, BG028333, BF103812, AA479559, AW301038, AW081643, BG112033, BF183860, BF541112, AI028278, BE879546, BF213193, AW130434, BF030176, BF665269, BF132139, BF700007, AW131303, AW131295, AI955122, AI422293, BF382241, BF130738, AW083308, AI672869, BE909361, BF381820, BE744389, BE855465, BE546966, BF540976, BF032082, BF977978, AI878995, AW327347, BF977675, AI281194, AA633512, AI351044, AI097413, AA477638, BE788872, AI560983, AA813514, AV747127,

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HE8NI05	1291	903697	1 - 752	15 - 766	AI134851, AW966053, AW975618, AW978634, AV723927, AV719188, AV699447, AV699550, D57483, AW978661, D80253, D51423, AW949641, D81030, D59859, AW973307, AW966534, AW959202, AW975621, D80166, AW966531, D59619, D80210, D80240, AW949653, D51799, AW960353, AW966041, AV719822, AV718489, AV718692, AV720211, AV699927, D80227, D58283, AV719324, AW949656, D80212, AW949642, AV719557, AV720731, AV722801, AW966013, D59889, D80219, D80188, D80195, AW959799, AW975605, AW966054, AV718440, AV719783, AV720028, D80391, D59610, AV720203, AW966050, D80043, AV720464, D80269, AW966062, AW959597, AW959628, AW965177, AW959570, AV718800, AW949645, AV718931, AV718844, AW949657, AV718770, AV724520, D80366, AW949633, D80196, AW965158, AV718633, AW978648, AW964488, AV720791, D59927, AW949631, AW949643, AW949618, AW949655, D80038, AW949629, AW960465, D80193, AW959582, D80241, D80022, AV719468, D80024, D59502, AV721386, D59275,

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H2CBP53	1292	903718	1 - 1613	15 - 1627	AL515603, AL517389, AL532802, BE274953, AL519414, BE733941, BE746750, AW963023, BG107046, BE910239, BG170496, BF981175, BE884855, BE896793, BF983691, BF982001, BE892987, AL525500, AW968941, BG106044, BE262424,

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HDPPP18	1293	903850	1 - 1504	15 - 1518	AL529496, AV681504, AV681500, AV681462, AV681497, AV645385, AV681529, AV645317, AV645392, AV681495, AV681465, AV681507, AV681526, AV681512, AV645393, AV645390, AV645336, AV681492, AV681509, AV681525, AV681505, AV681471, AV681502, AV681486, AV681483, AV681464, AV681506, AV681523, AV681519, AV681487, BF843303, AV645358, AV681513, AW971745, AV681475, AV645383, AV645401, AV645332, AV681510, AV645389, AV645377, AV645379, AV645369, AV645321, AV681527, AV681501, AV645400, AV645404, AV645353, AV681458, AV645380, AV645334, AV681528, AV681514, AV681474, AV645339, AV681477, AV681491, AV681472, AW162917, AV681488, AI271850, BE614237, AV681461, BE613349, BE612945, BE622828, BE613070, BE614307, BE613136, BE622931, BE621911, BE614230, BE622925, BE618811, BE622868, AV645350, BE620742, BF881526, BE614451, BE245275, BF813104, AV645344, AV681531, BE620756, AV681468, BF894558, BF895385, Z99396, AW604723, AW392670, AW858526, AW858525, U46347, AW804686, AW861889, AW858455, AW363220, AL119484, BE695785, AW861944, AL119457, AW604726, AW384394, AL119497, AL119396, AL119319, AL119439, AL119324, U46351, U46350, AL119391, BE705903,

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HSLFD86	1294	903930	1 - 1591	15 - 1605	
HTLDD85	1295	904049	1 - 1067	15 - 1081	AA778552, AI201364, AI150012, AA876180, AI223025, AW663435, AW304049, AW663514, AA978197, AI223459, T19204, AA903410, AA382504, BF377251, BF376440, BF377259, T36107, AF012359, AA864517, BF377279, T36109, AI352610, BF377252, BF377278, AA868778, AW102794, AW058243, AI513723, AI514015, AI921248, AI513907, F36855, BF792781, AI978703, AI538885, AI118781, AI811603, AW131994, AV736808, AA190341, AI250852, AW827206, AI863466, AI890907, AI049669, AI514867, AI538850, AI677797, AI345688, AL039783, BE966927, BE011880, AI241744, AI571699, AI560099, AW078650, AI690946, AI950100,

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HDTIZ68	1296	904058	1 - 1104	15 - 1118	AV710643, AA682496, AL749928, AV712599, AJ871491, AA166695, AA906714, BE972339, AV712475, R16882, T87299, D79690, AV741119, BF875951, AF150302, AV712496, BE241489, R16934, AV653767, AF186114, A79054, AF134715, AF132600, AF116456, AX044406, AF136293, AX047489, AF119383, A79060, A79061, and A79062. BG257195, BE249979, BE531338, BE293689, BE293347, AA465494, AA076535, BE304626, BE513219, AA149704, AA569010, AK024932, AB033899, AK000339, AB049761, AB012933, AB033901, AB033900, AB033902, AB033904, and AB033903. AU121983, AU142011, AU140553, BF310789, BE298155, AA780275, BF308182, BF305747, BF589646, AA524472, BE814909, AF796214, AI800089, AI620874, AW119178, BF445851, AW292287, BE836137, AU147700, AI493093, AIS21627, BF055031, AI376017, AA759333, AW271577, AA644380, AW139649, AA649884, AA448215, AW206907, AA912175, BF995517, BF995586, AA478455, AI493371, AW296774, AA514321, BF995565, AV752143, AA995890, Z44658, AI269124, AV752672, AI826250, AI394047, AI380014, AI800874, BF063946, AI571955, AA448357, AA865884, H95104, AA365259, BF829930, AI640852, BF965350, AV752590, Z40511,
HDAAV92	1297	904116	1 - 734	15 - 748	
HDPGH33	1298	904204	1 - 2430	15 - 2444	

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HHEPR52	1299	904360	1 - 555	15 - 569	AL516746, BF980691, BE740193, BE744654, BF530048, BE273312, AL047004, AW163066, BE702033, BE545415, AL521080, BE797285, AL528644, AL514308, AL520688, BE782946, BF699356, BE797528, BE781512, BE314042, BE866857, BF345868, AL515384, BE744392, BE783530, BF031113, BE876119, BE874134, BE904479, BE782888, BE873370, A1751459, BE880453, BE740753, BE256558, BE265452, BE616974, BE251085, BF132232, BE872300, BF314227, AA401153, BE871357, BG118586, W32784, BG121266, AL530793, BG179458, BF213345, BE547872, BE787715, AV736451, BF035908, AA477024, AA074562, AW965784, H23339, BE746413, BE019701, BE741074, BE019857, BE936508, BF090799, BF930574, AA159385, AV743828, BF090647, Z45486, BF090684, T78247, AA121947, F06907, AA687532, N88433, T07995, BF530447, BE779799, R35014, BF090562, W17118, AA297409, BF693865, H47444, R84488, AA297404, AA297477, F08111, AA297839, BE873574, AA404441, AA824395, R47823, T08524, BF968524, T19986, AA247384, T19987, BE868293, AA214707, BE275946, BE407239, BE382761, BE744287, BE514572, AW027007, BF737283, AW027018, AI034167, BE747282, BE744886, BF738694, AA985583, AA733158, AA770186, AA661638, AI307230, AI076446, AA121948, BF092043, AW859700, BE796353, AW849521, AF151020, AX013063, and Z65735.
HSYDY88	1300	904381	1 - 2103	15 - 2117	BE799745, AW149659, BF034086, BE262936, BF317221, BF528820, AI435112, BF347942, BF984178, BG056462, BF196843, AL529624, AA779709, AW352357, AW167499, BE328548, AI982761, AI246702, AI271662, AL518866, AI982751, AI538705, AL536118, BE734663, BE733072, W07076, AL537723, BF569646, BE908156, BE906311, BE925156, BF764087, BE314199, AI689641, BF530233, BF683470, BF315602, BE313287, AW965361, BF968011, AL536119, AA232168, AI032138, AI183690, BE312408, AA809550, AA332510, AA447471, BE260710, BG164707, AW136277, AA298564, BF196591, AW665899, N77910, D55112, AA564806, AW631124, BF923719, BE018730, AI142536, BE393867, AA341609, D54101, T80568, AA199743, AA852419, BG250851, BF311148, D53384, AV722133, BG032159, T05461, AW138906, BG059892, AA852418, BF569986, AA355036, AA024888, AI133670, BG117992, BF527898, BG117812, AI174232, AI205304, AA533322, AA486937, AW071935, AW136268, W26633, D53747, AA844525, BF981945, W67857, AI082447, AI290911, H08108, AI131328, AW839764, AI091646, AW117296, T03902, BG056888, AW168872, T31719, AI741489, AW068986, AI467910, AA730875, AA233541, AI282445, C15651, D52660, AI682685, AI174443, AI432175, AI420648, AW839827, W25885, BF684204, AA599916, BF525584, AI288692, BE466948, AA243035, AI690048, AA243034, AA779042, AA853744, AI038647, AA486941, AA232504, AA486765,



HHFCW31	1301	904399	1 - 1766	15 - 1780	BF832290, BE714508, AR071761, AF217963, AF132205, AL133628, AF124440, and AF320908. AL528146, AL532850, AL528147, AI620217, BF528248, BF982162, AI056665, AW964795, AW973144, AI744518, AI038199, BF346739, AA236476, AI368718, AA747220, AI888960, AA534256, N47941, AA234584, BF371928, H19150, AI468582, BF371877, AI360711, BF445507, AI682413, N46864, R52959, H05869, AA297549, T27100, AI557353, AA736703, H05762, N49148, T27101, AA535462, Z45279, Z40989, AA579494, BE855666, R11739, AA358738, AI474169, R41378, AR052523, AF179274, AL157430, AB017270, AB004064, AR052522, AB041565, and AF264150.
HEOPR46	1302	904471	1 - 2680	15 - 2694	AW206491, BE243223, AI138727, BF057784, AW402064, AI280951, AI281357, AI249918, AA806582, AA936836, AI355086, AI650638, AA835742, AA279348, AW139813, AI088225, AA910667, F34182, BF001154, AA338603, AA338682, BF765083, AW861944, AW604723, AW804686, AW392670, BE695785, AW858526, Z99396, AW858525, BE705903, BE705906, BF868687, AW577135, AW372827, AW384394, AW861889, AW858455, AW877209, BF868697, BF868684, BE705905, AW363220, AL119457, AL119497, AL119355, AL119324, AW604726, AL119319, AL119483, U46351, AL119443, AW861954, AL119484, AL119363, AL119391, BE705904, AL119522, U46341, AL119341, U46349, AL119335, AL119396, AW971745, AI142131, AL119496, AL119418, AL042984, U46350, U46347, AL119444, AL037205, AL119439, U46346, AL042614, AL119401, AL134538, AL043033, AL042965, AL042975, AL134902, BF868696, AL119399, U46345, AL134525, AL134536, AL042450, AL043029, AW969885, AL042551, AW979204, AL042433, AL043019, AR060234, AX046357, AR066494, A81671, AJ279014, AR054110, AJ251859, AX030435, AB026436, and AR069079.
HDPIF47	1303	904473	1 - 2218	15 - 2232	AL513582, AU137710, AL513581, BE79926, BE875907, BF968799, BF791555, BF792958, BE876251, AW959968, BF792810, BE827843, BF968555, AI949941, BE876162, AU136532, AI765763, AW382167, BF692458, BG179488, AU122835, BE892299, AV699640, BF106234, AW382174, AV713629, AA449500, BF212019, BF692025, AW583040, AW382170, AW902068, AA878385, AA704776, BF979062, AI768711, AI918137, BF215357, BF570762, AW235520, AI199832, AI367820, AI074542, AA243341, AA071031, AI308913, BE150978, AW609396, AA604828, AI304674, AA831297, BE151243, AI290204, BE614989, AW391610, BE150919, AW389522, AU155999, BE150848, BE150932, AI086256, AA554171, AE285140, AU157281, AW379916, AW389518, AI361484, BE150880, AA285176, AA679730, AA287652, BF766698, AI028778, AI342266, AI332795, BF572848, BE501465, AA564884, AW609661, AA497006, BF432681, BF438907, AA496929, AI742352, AA824372, AA427806, AW582335, AA286805, AA809400, AA101705, H50009, BE150881, R59881,

					<p>AI356809, H66597, W48831, AI863722, BF766705, AA449072, AW394227, N64570, T96603, BE465872, AW814225, AI860155, BE702178, H47883, AW394207, BE702109, AA243537, AW802638, BE702071, AW391634, AA425753, T96711, BE149864, R59882, AI301234, AW816178, AA524763, AA297709, AW582392, AW609367, H89251, AA284029, AI703471, W49812, AI458780, AW075621, AI867621, AW380564, H89250, AA489590, BF912063, H66596, AW380556, AA101704, AA497092, AW380562, AA730264, AI433332, BF510495, AA210752, AA863154, BF513435, AA070527, AW818973, H47884, AA211712, C00853, AW337692, AI269992, AW391666, AA296965, BE673630, AA296966, AI570809, T25724, AV689499, BE910632, AW582435, BE150974, AW391617, AI954461, AW152174, BF999751, AI587112, BF764712, AW816180, AW102931, AK024215, and AK023478.</p>
HKAIP13	1304	904639	1 - 2372	15 - 2386	<p>AW959618, AL528457, BE857709, AL528430, AI806250, BF126180, AA455382, AI084580, AW368035, AL529481, AA005065, AI088155, AI566044, W92235, AA706063, BE328495, W92236, AA299662, AA004847, BE149252, H56718, T77776, AA002009, AA227236, AI922495, AA722941, AA456022, AA299663, AA001788, AW630463, H56641, AW904581, AV733999, AW971745, AL119457, AW392670, Z99396, AW804686, AL119319, AW861944, BE695785, AW604723, AW858526, AW858525, AL119355, AL119324, AL119497, AW877209, U46350, U46351, AL119363, U46349, BE705903, BE705906, AL119391, AW577135, AW372827, AL119483, AW384394, AW861889, AL119341, AW858455, AW363220, U46347, BF868687, AL119484, AL119443, U46341, AL119444, BF868697, U46346, AW604726, AL119439, BF868684, BE705905, AL119522, AI142134, AL119396, AL119335, AL043033, AL037205, AL119401, AL134538, AL134542, AL134528, AL134902, AL134531, AL134533, AL119418, BE705904, AL119399, AL042984, AL119496, AI142132, AL134525, AL134536, AW861954, U46345, AL119464, AL042450, AL042614, AL043029, AL042544, AL043011, AL043019, AL042542, AL042965, AL042975, AL043003, AL042551, AL132826, AB040902, AF169677, U42975, AB026436, AR066494, AJ251859, AX030435, AR060234, AR054110, A81671, AX046357, AJ279014, AR080280, and AR069079.</p>
HLWEP76	1305	904673	1 - 2152	15 - 2166	<p>AL514028, AL514027, BF309286, BE394233, AI937145, BF341063, BE090095, BF996163, AW007832, BF056466, AW300812, BF995041, BF750858, BE855995, BF341846, BF516522, AI982559, BF057637, BF750864, BF446278, AW664488, AL042399, AI026694, BF062178, N70144, AL042400, BF939187, AI189816, AA325825, AI125510, AI824290, BF229962, AI560393, AI206451, AL203493, BF062533, AW196328, N62429, T48622, BE856501, BF091634, BF091588, T35041, AI024408, BF431830, AI204132, BF991680, Z39476, AL537669, AW138527, BF920850, R33737, AA367854, T40614, AI198470, R78066, T35073, AI968937, T19189, AI654947, T53308, AW241489,</p>

HTLIT05	1306	904861	1 - 1253	15 - 1267	Z43405, R77096, R62691, T19258, T53584, AW13853, AI468224, R78103, AI887002, AA336184, BE327016, AI589930, R76920, R23638, BG015036, AA774524, T48621, BG003031, R77732, AI452920, T53583, T39478, BF752954, BG013571, N98321, BG008889, R33625, BG004892, BG008197, T53307, AW059861, BF369604, BF878013, AI024102, AA338469, D45642, AI864438, BF818770, BG015443, and BE930306.
HTLIT05	1306	904861	1 - 1253	15 - 1267	BE745491, AI521447, BF982675, BG257755, N24987, Z42066, AW856800, T07905, and AC009475.
HPTZB93	1307	904877	1 - 1084	15 - 1098	BE550131, BE669741, AI279486, AW206040, AW138281, BE503536, AI817720, BF111080, AW205987, BE220179, AW206016, BE550053, BE673676, BE674121, AI694554, AA862263, BF223526, BF111158, AI860959, BF432864, BE042918, AI298729, BE327458, BE670698, BE674475, AI299747, AI216051, BE219919, AW340960, AI703067, BE504354, AI885693, BE218553, AW341220, AI681397, BE550043, BE219182, AI802146, BE220008, BE671475, BE218558, AI066735, AI298540, BE221386, AI630777, BE219603, AI279331, BE551086, BF108563, AI912139, BE503797, AI634502, AI127856, AI268259, AI796940, AI129532, AI299414, AI692842, AA923300, AW140104, AW665683, BF432977, AW137441, AW207254, BF433893, AI216530, AI914342, AI268955, AI459037, AW136174, BE327378, AW593075, BG055474, AI299132, BE465162, AA938376, BF510144, AI912208, AI693815, AI301061, BE221081, BE674621, AI002211, BE467016, AI299900, AW592285, BF433695, AW614715, AI298698, AI298009, AI702631, AI871768, AI810454, BE468203, AI689870, AW016202, AI458645, AI222004, AI689871, AW102711, AI702711, AI689859, AI804311, BE467560, AI732920, AI732919, BE045630, BE504320, AA995350, BE674465, N68345, AI351290, AA962534, AA825171, AI476744, AA974790, AA878309, BF111046, AA934499, AA528135, AI702851, AW024083, N94016, AI187311, BE645921, AW003096, AI670694, AI223259, BE221508, AW003320, AW139377, AW470300, AA916697, BF509919, AI791238, BE504086, BF110037, D50979, D59859, D80022, AW966053, D59787, D80253, D80024, D80391, AV699447, AW978634, D57483, D59275, D80196, D80366, AW975618, D51423, AW978661, AV718489, D81030, D59889, AW966531, AW966534, AV718692, AW973307, AW959628, AW960553, D80166, D58283, D59619, D80210, D51799, D50995, D80240, AV719822, AV719557, AV719324, AV722801, AV720211, D80195, AV720731, AW959202, AV723927, AW949629, D80188, AW949656, D80212, AW949642, D80043, AW975621, AW959570, D80219, AV718440, AV720028, D80164, AV699550, AW966054, AV720203, AV719188, D80227, AW966062, AV719783, AV718800, AW949645, AV718844, AV720464, AV718770, AW949657, AW965177, AV724520, AW949654, AV699927, AW949618, AW949655, AW966013, AW966041, AW959579, D59927, AV720791, D80269, D80038, AW949631, AW949643, AW959597, AW959582,

					<p>D80193, AW949632, AW965158, AA829735, AW949641, AW949633, AW966043, AV719468, D59467, AW960465, AV721386, AW966050, AW964488, AV718633, AW958993, AW975605, C15076, D80378, AW973447, AV718931, AW752082, AW949653, AV700889, AV720812, C14429, AA018899, D59610, AF312769, AR084715, AG2300, A62298, AX033851, A84916, AX027925, AR070327, AJ132110, AX035434, AX021518, AX047063, D26022, AX047064, AR018138, D34614, AJ302649, D88547, X67155, A25909, A78862, AX020191, A67220, D89785, AX020190, AX047062, Y17188, AJ287395, AJ294956, AR092424, AR025207, AF260572, X82626, AR008278, AF058696, AB012117, AX028130, AB028859, AR087649, A85396, AR077702, AR074141, AR066482, AX042372, A85477, A44171, I19525, A86792, X68127, X93549, AX015396, Y12724, AR088705, AR074545, A82595, A94995, AX035429, AX035428, AX035426, AR060385, AB002449, AR008443, AF135125, I50126, I50132, I50128, I50133, AR066488, AR016514, AR060138, A45456, A26615, AR052274, Y09669, AR008277, AR008281, I18367, AR074139, A43192, A43190, AR038669, AR066487, AR054175, AR074136, AR066490, A30438, D88507, I14842, AB033111, AR064240, AB037923, D50010, Y17187, A63261, AR008408, AR091537, AR062872, A70867, AR093385, X64588, AR016691, AR016690, U46128, D13509, A64136, A68321, AR060133, AR087528, I79511, U87247, Z32749, AB023656, U79457, AF123263, AR071754, AR032065, X93535, AR008382, AA885627, AA910380, AA916296, AA953807, AA971615, and AA987456.</p>
HWLAJ33	1308	904911	1 - 1264	15 - 1278	<p>AV714629, AV712849, AV655679, W37646, BE068228, AV713569, AI829939, AV712446, BE068227, AI188478, N42191, AV717356, BE930088, BE930112, AV711812, AV710658, AV733194, AA651825, R95749, BE930104, N74604, W37382, BF436405, AI672667, AI344390, AA845191, BF986915, AA831436, AA948467, AA835036, BG231639, AI189929, AW974584, R11180, T82875, AW191839, AI002523, R11179, AA704742, AA287646, BE698342, BE698353, AI300829, AW196619, BF086200, BE930116, BE245236, T62699, R95793, AW191840, T62849, T90287, AA938191, AW089814, AA988042, AA999818, AA886287, BE245206, AW341475, R94937, AL042114, AV715293, BE702411, BE702417, AW904277, AW904273, AW904276, AW904300, AW452299, BE702415, AA502473, AA480612, AW877209, AW392670, AL119457, AW857101, AW804686, AW578857, AW861254, AV703471, AW604723, AW861944, BE695785, AW858526, AL119324, AW858525, AW372827, AL119391, U46341, AW363220, BF868687, BE705903, AL119319, BE705906, BF868684, AW577135, AW384394, AW861889, BE705905, AW858455, Z99396, AL134531, AL119363, AL119484, BF868697, AL119497, AL042973, BE705904, AL119399, AW604726, AL119355, AW861954, AL119522, AL119341, U46351, AL042614, AL119396, AL119483, AL119443, AL119444, AL042544, U46349,</p>

					AL119335, U46350, U46347, AL134920, AL042965, AL043029, U46346, AL042975, AL037205, AL119439, AL119496, AL119418, AL042984, AW971745, AL119401, AI142139, AL134527, AL134536, AI142131, AL043019, AL042542, AL134533, AL134538, AL042978, AL042433, AL042980, AL042970, AL042450, U46345, AL043003, AL043008, AI142134, AL079683, AL043011, AL042989, AL043033, AL042551, AL119464, AL043039, AL119488, AL119304, AL119320, AF309653, AF201951, AB026043, A81671, AR060234, AJ279014, AR066494, AX046357, AB026436, AJ251859, AX030435, AR034110, and AR069079.
HAGFD47	1309	904977	1 - 1423	15 - 1437	AL521371, AL521372, AL516032, BF337502, BF791366, BG249151, BG258660, BE871082, BE384522, BG113640, BG260630, BE277846, BE531141, AV731587, BF346426, BE973743, BE389571, BF667795, BE563906, AI735261, AI808277, BF211360, BF691310, AW674769, BF743166, AI368797, AA583057, AI828551, BE567499, AA807741, BF965165, AI026716, AW853901, BE616237, AI088857, AW439214, AW853890, N73457, AI142511, N34764, W02860, AA633495, AA594963, AA862351, BF790198, AI469848, AI356184, N27248, N44490, AI125040, AW518053, H98681, AI306645, AV729211, AA748024, AW675383, AI280832, AA830528, BF691333, AI707840, BF239125, AA916426, AI285008, AW951663, AW958349, AV724056, BF743169, BF572289, BF664548, AA459511, BE615442, T87237, H04537, T71560, H29267, H94779, BE614864, BE855394, T71330, H09795, AW078897, AI261966, AA507967, BF541751, AA613581, H09880, T74091, H57434, BE763380, H29351, AI783537, BF239991, T79791, T82010, T71482, D60812, AV711819, H04458, T97835, AA483615, BE093345, AI685127, AA307295, F10230, AW068971, F12612, AI471017, C00631, AI523786, BE833176, AI587003, AW051263, AA588437, AW364142, T10196, AA379077, R41344, T79360, AA156281, BE077173, T99340, R18496, AL516031, AA156393, T10197, AW168908, AA215785, AA452714, AA307316, BE833069, AA082465, AI919531, AA450068, R64481, and BE697991.
HSKAS66	1310	905017	1 - 779	15 - 793	BE903604, BE877226, BE788807, AL525054, BE549234, BE379419, BE909447, BF033662, BE745405, BG116654, BE782991, BE729574, BE612600, BF792659, BE734296, BF686415, BE382926, BE266690, BE746235, BG167167, BE742508, BG249818, AA443445, BE747302, AI380916, BE899322, BE254649, AA054185, H68793, N36450, BE780379, H06674, BF316896, AA852859, AA428116, T71376, BE259564, H82530, H86659, BE311981, BF339777, BE829913, BE613340, BF350582, BG164618, BF130572, AW245743, BE265746, BE890771, AA838309, AW630507, BF928087, AI079540, AL110467, AA443541, AC011479, and AX041940.
HOFNT25	1311	905050	1 - 3124	15 - 3138	BF677384, BF920128, BG023825, AA077497, AA077528, AA296889, AA077040, AA076945, AW772344, AA296961, AI818971, AI818951, and AA077342.
HWBDL33	1312	905114	1 - 1857	15 - 1871	AI263085, AV715678, BF338621, AI671224, BF109307, AV733821, AI741604,

					<p>BF940028, AV717594, AV661743, AV706345, AV733584, AV734019, AV055187, H93009, AV716911, BF574865, AW057512, AV714513, AA058688, AI800594, AV733784, AW195361, AI740946, AV716310, BF593722, AW271301, AV717053, AW292805, AA160279, BF106072, BE046993, AI302809, AA160278, AI769897, AI200257, AI628787, AI735273, AI458862, AI091306, AW272744, AI128201, AA716336, AI707638, AA031623, AI307309, N59386, AA421911, AV711858, AW052091, AA088175, AI824017, AA449402, AA461046, AV727725, AI635515, AA992750, AW473067, AI699923, AI880867, AI597746, AA460478, W03796, AI239461, AI863568, AA448335, AA582895, AA449267, AI278475, AV734415, AI691016, BE464130, BF222944, AI758904, H64963, AI278932, BF941490, AA709030, AI418284, AI361585, AA045175, AA150151, AI634797, BE467132, AA035209, AA045521, AI933321, H59637, AA035208, AA975342, AA917066, AI261533, AI300367, AW474837, AI149430, T97469, AA502528, AI199994, AA974453, AA810540, AA411404, AA576365, F20467, AA040431, N47960, AI373386, AI684553, AI962642, AI474422, AW072561, AI824266, R97144, N73170, AA731356, AI806247, T97468, AA502505, HI13072, BF868999, AA099553, H64964, T96890, T96889, R58859, AI161128, BE831336, AA677863, BE971417, H95741, AA380214, AA040644, BE465129, T70436, H94235, AI305839, BE718457, AW951636, BE718394, AA366448, AI743473, AI668883, AA366209, R97096, AA502417, T81549, AA361023, AA045294, AA976534, AA974771, AA465003, AI922795, AA441989, AW148422, AW952968, AW182457, HI3276, BE831335, AA344621, N77074, AA713812, W01926, AA031704, AI733416, AA736644, AA040430, AA101990, N49171, AA781193, BF934808, AW470859, AA382998, AI148352, AW452710, BE928787, AA152220, BE828350, AF212240, AX017610, AX017505, AB013104, AF142409, and AK026454.</p>
HAABQ61	1313	905116	1 - 1880	15 - 1894	<p>BF338099, BG165577, AW003857, AI820045, AW957974, AI523911, AW084836, AI983096, AI333432, AW188197, AW386991, AI433769, AI379333, AW438811, N41047, AW387003, AA927750, BE139611, AI435307, BF436802, AW613586, R71675, R50080, AA678318, AA748856, AA301830, R71707, AI337423, AW243869, AI382805, AA577365, AI926335, AA568182, R47922, AA057770, R48030, AA047722, R50081, BE247721, AI539624, AI698267, AI224055, BE244865, AI365443, BE076010, N47137, AA903242, BF380516, AA581759, AW975037, AW971975, AW972845, AW975002, AW976024, AW975032, AW975628, AW979204, AW972292, AW975965, AV702790, AW975105, AW974786, AW974801, AW979127, AW971403, Z99396, AW877209, AW975031, AL119457, AW979134, AW970942, AW972377, AW969791, AW979002, AL119399, AW973219, AW975649, AW975154, AW971375, AW971732, AW979090, AW969673, AW975952, AW979098, AW979238, AW973213, AW979176, AW969885, AW979294, AW969680, AW975971, AW974964, AW954206, AW975692, AL119324,</p>

					<p>AW975876, AW975930, AW975981, AW979106, AW975025, AW973717, AW975027, AW705416, AW955723, AW975632, AW969643, AW975954, AW974998, AW969839, AW970969, AW975942, AW974823, AV684962, AW974975, AW971404, AW976023, AW974658, AW972296, AW975254, AW972867, AV705047, AW975966, AW974785, AV654070, AV707572, AW973209, AW969816, AW976511, AV726789, AW974806, AW976031, AW975028, AW975015, AW971378, AW969852, AV703012, AW979220, AW979219, AW955662, AW954237, AW976000, AW972680, AV658084, AW969637, AV726010, AW970010, AV658258, AV656013, AW950443, AW973750, AV651920, AW954439, AV707458, AW960601, AW952403, AV725991, AW972880, AW975019, AW971326, AV702772, AW952751, AW956075, AV645936, AV709587, AV692600, AV650315, AV697880, AV659389, AV727613, AV656373, AV706089, AV702486, AV660258, AW959521, AV708109, AV647789, AW956474, AV727787, AV659294, AV703146, AV686060, AV725745, AV728148, AV660608, AV726590, AW952410, AV709314, AV653353, AV691080, AV728872, AW951281, AV702385, AW949802, AV658275, AV652001, AV703669, AV707979, AV709580, AV725208, AV727003, AL134524, AV725582, AV708786, AV659547, AV727526, AV725618, AV725633, AV702266, AV686100, AV725577, AV695752, AV725033, AV696754, AV706223, AV728924, AV725617, AV707863, AW974802, AW972849, AV703062, AV727822, AV699089, AW962384, AV705135, AV701874, AW979142, AW962444, AV703501, AW974338, AV707401, AK025994, AX046357, AR060234, AR066494, AJ279014, AX047063, AJ251859, AX030435, A81671, AR023813, AR064707, AR069079, AR050070, A62298, AR096545, AF217994, Y08991, Y11505, S68736, AB026436, AR054110, A91160, AR096546, and AX040577.</p>
HFFFA83	1314	905151	1 - 722	15 - 736	<p>BE791739, AW956207, AW975618, C14389, AW949630, AW966053, AW966013, AW959597, AW960465, AW966022, AW959570, AW966029, D59467, C15076, AV720791, AW966534, D58283, AV719188, AV720150, AW959136, AW959062, AW965175, D50979, D80522, AW973474, D80164, AW966041, D80166, AW965185, AW965197, D80195, AW975621, AW978648, D80043, D80227, AW966065, AW956397, AW966531, AW962082, D81030, AW964532, AW966059, D59275, AV719557, AW966054, AW973482, AW966050, AW966075, AW966062, AV719783, D59502, AW973334, AV699550, AW978634, AV718800, AV720464, AV724520, AW964477, AW949641, AW949654, AV719468, AV699927, AW964756, D80188, AW959799, D59859, AV699447, AW958992, D80022, C14331, AW973307, AW958993, D51423, D59619, AW965177, AW978661, D80210, D51799, AW965163, D80391, AW960553, D80240, D80253, AW973541, AV720211, D80038, AV719822, AV718489, AV720203, AV718692, D80269, D59787, AW975613, AV719324, AV718440, AV718938, AV720028, AV718633, AW959628, AW960473, AW975605, AW959469, AW973485, AV718707,</p>

					AW965184, AV718931, AV718844, AV718770, AV720731, AW959202, D80193, AV722801, AV723927, D59610, AV699866, AW956434, AW964488, AW949656, AW949642, AW965196, AW973488, AV720878, AW949658, D80212, AW966030, D80196, AW753053, D80219, D81026, AV720812, D59927, AW965158, AW949646, D57483, D80378, AW966032, AW177440, D80366, AW949645, D80251, AA305409, AA305578, D59889, D50995, AW962245, AW949629, AW949632, D80024, AW973330, D80241, AW949653, AW949633, D51022, AW949631, AW949643, AW949618, AW949657, AW949655, AW964737, AV720533, AW960454, AW959582, AV723097, AW966023, AW752082, AW960532, AV721386, AV700889, D80045, AW966043, AW973447, C14429, AV701004, AV700229, AW960504, AW960564, D51060, AV718530, AW975623, C75259, T03269, AW960570, AW178893, AW964468, AW179328, AV699746, AW949634, AV720654, AW965176, AV699652, AV700159, AV699669, AA514188, AW962395, AW378532, D80248, C14014, AW973490, AV742001, AV742667, AV701125, AV701335, AV701166, AV742430, AV701149, AW973465, AV701043, AV701332, AV744690, AV701017, AV701248, AV742048, AV701431, AV699682, AV742022, AW753067, AV718681, AW753064, AV719628, AV681510, AV681491, AV699479, AV741187, AV741198, AV741191, AW377671, AV719049, AV720220, AV701419, AV701154, AW964766, AV700622, AV701422, AV645344, AW949620, AV701130, AV719000, AV645389, D51250, AW960474, AW369651, AW753041, AV720616, AW178762, AW178775, AW966049, AW177501, D80134, AB040801, AB040804, AR018138, AJ132110, A84916, AX027925, AR070327, AX047063, AX047064, AX033851, A62300, A62298, AR008278, AF058696, AX021518, AB028859, X67155, Y17188, D26022, AX035434, A25909, AX020191, A67220, D89785, A78862, D34614, AJ302649, AX020190, AX028130, AX047062, AR087649, D88547, AR077702, Y12724, X82626, AR025207, AR016808, A82595, A7294956, AR060385, A94995, AB002449, AF260572, AR008443, AR074545, AB012117, I50126, I50132, I50128, I50133, AX015396, AR066488, AR016514, AR060138, A45456, AJ287395, A26615, AR052274, A85396, AR074141, AR066482, A44171, AR088705, AX042372, A85477, I19525, A86792, AR074139, Y09669, A43192, A43190, AR038669, AR066490, AR066487, AR074136, X93549, I14842, A30438, I18367, D88507, AR054175, D50010, Y17187, A63261, AR008277, AR008281, AR008408, AR091537, AR062872, A70867, AR093385, AR016691, AR016690, U46128, D13509, I79511, A64136, A68321, AR060133, X68127, AF135125, AX035429, AX035428, AX035426, AR092424, U79457, AF123263, AB023656, AR071754, AR032065, AB033111, X93535, and AR008382.
HFIDN52	1315	905157	1 - 1539	15 - 1553	AL527003, AL527047, AL528849, AL532270, AL532269, AL518481, AL517507, AL518770, BG170535, BE795174, BF980363, BG170480, AV651086, BG170462, BG164756, BF525544, BF686680, AV651790, BF691635, BE783677, BG114472,



					<p>BG035401, BG252111, BE873303, AW953951, AW959884, AV655871, AA573144, AV721170, BF939826, AA005018, AA203390, BF314211, AE983151, BE619488, AW993798, AV696306, BE890629, BE896935, A1978717, BF031071, BE221501, BE261715, BG037102, AA007460, AW513164, BE326528, AW129961, BE550937, AV702919, BE856673, BF110080, BE769269, A1023529, A1023528, AA449327, BE515129, A1097101, BF109940, AW956324, H17224, A1307122, A1281472, A1138990, AA429301, BE875142, AA724365, A1126957, W47513, AA843528, AV699202, AA515478, AA074611, BG116303, N92125, AA621024, A1151489, AA005019, A1023888, W74039, A1963099, BG260258, W47514, AW296547, W29030, A1052664, A1369723, AL517508, A1470114, AA634442, AV689279, A1289000, BE153740, A1288995, A1131387, H75708, BF942901, BE155290, A1093686, BF516565, BE155320, AV750019, BE155333, H77802, AA310308, AA470883, BF988395, H09852, AV685603, AA758859, R09589, AA873611, AA463447, AA663901, AW993699, A1080292, AA365043, BG258610, A1092232, AV660345, AV659085, AA937147, A1014968, R74259, AA682858, AA612948, H12975, BE786827, BE645529, BE619809, AA609107, AV723985, AW009774, AA358497, AW748966, AA449585, A1909657, AW383643, BE706823, AA214475, AA443488, A1076595, A1243243, BE696190, AA426125, BF222280, AA862640, T99925, BF941560, A1246182, AA336306, A1050921, AA508211, D55400, W19308, AW445069, AA865885, A1636974, H66722, BE696216, BF239793, R32666, N77454, A1266464, A1018497, R02421, BF219462, AA889290, A1247759, H75637, H00584, H00583, R28482, BF376184, BE706815, BE008036, BE155294, D53939, BE154028, AV747746, A1798308, BE763890, BE763886, W72360, W90696, AA074610, AA873850, AW264053, BF991806, AA524719, N63685, AW467054, A1742730, AW970744, AA425024, BF916867, F29136, A1347470, BE763895, AA429478, AA843783, AA635518, A1263801, D52605, AW008958, and AF151807.</p>
HAHSE23	1316	905257	1 - 917	15 - 931	<p>BG004659, BE784422, D78812, AW972331, AW139572, A1337247, BG236174, AW139573, AW274906, A1394041, AW972326, BE348713, BG235928, BE219929, A1621023, A1681036, A1968134, A1186456, A1394092, AW972330, BE714466, BE328194, BE714457, A1962750, AW139363, AA494171, AA099288, AW135801, A1422680, AA101983, A1391640, H04128, AW630450, BF898234, AA579232, AA635382, AA613907, AA176980, AA493923, AA572758, AA494167, AA640779, BG222103, AA528491, AA572880, BG152749, BE294475, AA528822, AA468418, AW150308, AL044192, A1610362, AW090087, BF814357, BE084795, A1656270, AW970048, BF750879, BF924897, AW075351, BG105099, A1114703, BG112456, AA640631, AW161202, AA528799, A1829327, BE875959, BE909521, BG036784, A1340519, BF734768, A1521634, AW051088, A1340603, AW983783, AV682559, AL047655, A1452857, A1802240, BF344031, BG250213, BF793309, BF909758,</p>

AA088789, AI360195, BF125935, N29277, AI866465, BF813196, AI249253, AL118781, AI345688, BE881289, BE877846, AV721135, BG058150, AW806761, AV708653, AI564992, AI802372, AV746791, AA641818, AI050666, T99953, AA587590, BE964997, AI439020, AV682229, AL119748, AW162194, BF871314, AI583054, AI380723, AI036652, AA768478, BF107573, AW082623, BF340373, AL514919, BG105078, BE971716, AW021717, AW020397, AW190297, AV681990, BG179295, AI955866, BE011880, AA479803, AL040241, BG112239, AW172723, AI348854, AA602479, AI537191, AA464646, BG178351, AW827285, AW827289, AI567582, BE048071, BG105107, AI805688, BF343241, AW161579, AI811603, BF813139, AI432653, AW059828, AI310575, BG109118, AI628850, BE621256, AI677797, AV682326, AW827206, AI340533, AI345745, AV732865, AV734049, AI121286, AV721044, AI537643, BF814449, BE966011, AI559752, BF764538, AL038505, AW129171, BF245652, AL036396, BG111230, AI921055, R23306, BF968910, BF752353, AL135024, AI696626, AV681891, AV726605, BF970768, AV714975, AV681881, AV682446, AI251221, AV756633, BE876049, AV726229, BG257525, AI340627, AV757096, BF970623, BG029053, AW020095, AW673679, AW366372, BE964614, AI584140, AI689614, AW022300, AI699020, AI696846, AW022084, BE255995, AI038529, BG120492, BE965355, AI564749, AV706624, BG113851, AV756836, AI859464, BE905335, AV755973, BF753053, AI530596, BE965169, BF997967, AA580663, BG122481, AA830821, AI307708, AI524654, BF525524, AL045672, AI445256, AW827201, BG105895, AW079768, BG121959, AI251205, AA910956, AI538850, BE85490, AW071380, BE155168, BE277998, BF154737, AL042400, BE875407, BG178911, AI371228, F37468, BE965758, AI872250, BE963968, BE965599, AF196329, AF287008, E12747, AF113699, AK026045, AL389935, AF116688, AF090886, AK024594, AF158248, AK026506, AK026086, AL050116, AL133072, AB049629, AK025378, AF102578, AF130054, X80340, AF119909, AF180525, A08910, A08909, AK026624, I48978, AL049300, A65341, E03671, AB051158, AF119865, AB007812, AF262032, AK000391, AK026855, AL117648, AF113690, AL137557, AB049758, AK026533, AF116610, AX015416, AF116646, AR013797, AL049314, AL117583, AL137459, AL023657, AL122045, AC002471, AC005374, AF065135, AK026522, AF069506, A08913, AL157482, AL162004, E12580, X98834, I66342, AL050146, A08912, A08911, AL137429, AF100931, AK026613, AL359601, AL096744, AF260566, AF192401, AF192402, I89947, AI8777, A08907, A08908, AL389978, AF067420, AF192557, AR038969, AK027204, E12579, AL122093, X93495, AL137555, S76508, AC009501, AL117432, A57389, U00763, AL389983, A77033, A77035, AL049382, AF150103, AX017991, AK027217, AL080234, AL117649, AK025708, AK026434, AK025465, AL133049, AK026442, S61953, AY004290, AL136884, L13297, AB047248,				
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HW/MFE21	1317	905289	1 - 2619	15 - 2633	<p>BF968408, AW953455, BE513085, BE889654, BE910370, BE311470, BE744228, BG167712, BG163998, BG167766, BG181007, BF219830, AW410963, BF183034, BE905308, BE273660, AW150338, BG025353, BE906937, BG024133, BG248447, BE784095, BE787695, BE894840, BG035017, BE273358, BE613036, AW068179, BF870292, AW997226, AI609947, AW190590, BF334791, AA536207, AI419345, BE247396, BF129143, BF334812, BF334774, AW303929, BF334775, BF334783, AI972206, AA076636, BF081258, BF334781, BF334779, BE736177, N47448, BF968513, BF334797, BF334790, BE789673, BF334816, BF334813, BF334801, BF334776, BF334805, BF814698, AW408759, AI126639, BE890383, BE876928, BF220216, T08688, BE709083, AA040020, BF334773, R73435, AA824249, BF844001, AW205834, BF843212, N24016, BF733515, W44967, AI141537, BF334769, BF334770, AA437330, AA427681, AA501748, AI829844, R74553, R72613, BF205734, AW001111, AW000739, BE300238, R85996, BF334795, R72682, AW410964, R82789, AA469296, AA368361, BF905696, AA469376, RG4060, BF334780, AI937321, BE714858, AA293648, BF334802, AA604680, AA102469, AI476060, AL044292, BE244069, AA910937, AA295640, AI291285, BE503809, AI676225, BF813657, BE242937, BE001794, AI291867, AI416979, AW956705, AW966388, BF347017, BG015518, AA488037, AI249741, BE814656, BE786532, AI744412, C18456, AW068319, AA427563, AI601165, BF334806, BE729392,</p>

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HHBEA82	1318	905311	1 - 5445	15 - 5459	T27258, AU140225, AI634860, AV648450, AI767588, AA894544, BE177971, BE536545, BE178142, AV689583, AI991689, AA404730, AI635347, AA195244, AW976840, BE386012, AW957842, AW665276, BF690664, BE767008, AA411217, AW236952, AW293268, AI640606, BE538471, AW467595, AW957918, AW072654, AI633129, BE856734, AI360887, AW274499, AI096717, AW081124, AI373594, AW117198,

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HWHP10	1319	905322	1 - 1808	15 - 1822	<p>BE742604, AL523029, AL523899, BE300434, BE621651, BF793948, AL525510, AL521264, BE739428, BE299600, BE621032, BE728133, BF027269, AL523049, BE740085, BE743407, BE905918, BF972259, BF037910, BE300271, BE746377, BE315244, BE617342, BE384312, BE544193, BF312136, BE409316, BG121594, BE866920, AL525557, BE617818, BF313357, BE272000, AI085965, BE646590, BE019859, BE387794, BE386142, BE389790, BE389031, BE962230, BE410888, AA075546, BE386299, BE300466, BE272520, BF203427, BE383794, BE277537, AA075675, AW170271, AA306026, AW051776, AL523028, BE879163, AI492240, BE391985, BE871970, AI986434, AA417668, BE387900, AI276289, AI091507, BE019858, BF684706, BE276279, AI148079, BE739093, AW168126, AI925426, AA604521, AA609132, AI200642, AW439781, W46825, BE314830, T50022, AA775791, T31817, AW884462, BF664248, AA747906, R77171, AI927129, AA576766, F28444, H55807, BE018464, BE208178, BE302077, R81379, R61827, BF998272, BF857276, AW090678, BF998267, AW952610, R61104, BE154540, AA669090, AA714715, BF916762, AI978746, BE154534, R81378, H55806, AW576851, AI190823, AW081405, AW382992, Z41500, AW510416, BE065740, BE154539, T81932, AA622979, AA377912,</p>

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HDPXZ89	1320	905371	1 - 3667	15 - 3681	AW003062, AI654328, BF342700, AI970963, AW029544, AW517252, AW139082, AA402041, AI652305, AW629557, AW087970, AW991845, AI656661, AA402165, AI375685, BF339423, AI151124, AW137049, AA988273, AI094361, AW517351, AI824507, BF870695, AI272209, W88691, AI739281, AW204663, AW838114, AV690544, AW136525, AW838103, AV686823, BE138897, BG013317, AV661425, BF992785, AW838104, AW838216, AI961606, AA703614, R72631, AI889195, BF872672, AW838225, AI741258, AW889778, BG180468, AI189175, AW838365, R72703, AA301981, AI307562, AI349603, AI043419, BE242319, BF805445, AL043418, AA296026, AW838363, AW838361, T60982, AW071314, AW838426, AW839650, T57409, BF930601, BE718101, AI445466, BE550519, AI206181, AI969294, AW838452, R61006, H09629, F04497, F10157, R45955, AA281795, T23509, AW165978, F09492, AA181185, T33336, F02464, AA683348, AI566949, AA285062, R41660, R41286, T90519, T05944, AA296027, AW411267, R42815, Z41597, AI146918, AA814075, AA502285, W81282, AI073440, H06731, AI754455, BE907305, AA533076, AA640833, R22967, AU159965, H18496, AI221468, AI363467, AA653152, AI468025, AA531581, AA844673, AA594903, AW082928, AA147770, R63535, AI051974, R46038, W67814, BG055535, AI085290, AI535920, AW149387, AI927282, AI018429, AI968132, BE301730, R38762, F33261, H58219, AA922589, T60927, T65146, BG256283, AI752883, R36845, BE620393, AI862638, AW580295, AI253778, BE620735, AW392670, AW858526, AW858525, AW604723, U46347, AI134527, AJ275213, D87433, AF131781, AK023995, AK022504, AJ279014, and AI656424.
HLICA89	1321	905505	1 - 443	15 - 457	AL529539, BE870722, AU126395, AL044418, R55122, BF765213, BF886482, BF886514, BF886480, BF951263, BF886073, BF887476, BF887611, BF978470, BE764027, BF886844, BF887478, BF886816, AU124203, BF904721, BG257021, BE868714, BF897927, D83782, and U67060.
HTTDZ50	1322	905792	1 - 3991	15 - 4005	AU132013, AA886981, AU140438, AV726712, AW955810, AI017106, BG260788, AV761493, AW499808, BE884030, AI082248, AW269494, AW995087, BF996055, AW994908, AW956899, AW505102, AW966361, AW995088, AW611829, AW995074, AW295094, AA470161, N23031, AI264018, BF748828, AW861535, BG121851, N23767, AI913297, AA897488, AW995078, AW504456, AW803138, AA558415, AA280845,

					AI435871, AI066593, BF380529, AI243807, AV745119, AA872792, AA479961, AI126901, AI394431, AA664287, W73395, AI473962, H10433, BF727371, BE177034, BE176968, AA705578, AI262861, AI864610, AW373541, H20660, L44314, BE176986, AW503440, AI538402, R97257, AV657894, AA700916, W73335, T83975, BF359247, BE775237, BF359212, R84884, AW869165, H23110, R98255, H06141, H23111, BF748827, AW351739, AW805740, H95495, AW600309, AW812607, N20089, N41363, AA386008, AW805860, R11663, BF379468, BF379040, AA825860, AA332375, AW966360, R12269, AA384332, AI933614, AA677406, AI702514, R36166, R58018, AA341733, AW805901, AV751116, BF837829, BF109052, BG013638, AW118294, AA243489, AI567393, AW382545, AW384756, N20908, AI923865, AW062641, AA478863, BE152858, AA090178, AI810114, AU158493, AI024885, R98020, AI360859, AA833759, BF828898, AA093963, AA332183, AW132106, AL118905, AA041188, AW104312, AA634010, AW800339, AW800363, AL119669, AI984581, BE177015, AA609134, AA962565, N31011, H06142, AI874046, BF835301, AA628637, AW805729, AA041255, H10434, AW860732, AW385545, AL514359, AB033115, AF265555, AK023848, AK023788, Y17267, AL133246, AL133243, and AB049871.
HTLHL43	1323	905798	1 - 751	15 - 765	AL533539, AL535070, BE748937, BF035835, AL527769, AU146089, BE074372, AW327290, BE538766, BE867172, AW961017, BF759319, AA235918, AW083127, BE205822, BF516089, AI798681, BF063649, T99938, AI797284, AW183981, AW410645, AI096678, AA236980, AI092936, AI144400, AI685511, AI860643, AW513360, AW273299, AI521427, AI801043, AW300673, AI074319, AI457885, AI399827, BE907388, AI885247, W46771, AW295119, AI924126, AW327628, AA651935, AI095832, H00554, T63211, AW137947, AW029034, AI393856, AI381953, AI811198, AW295118, T62960, AI458562, AA745647, AW151914, BF940829, R16113, AW198081, AW473030, AA813851, BF745269, AI823612, R43938, BE513187, T16212, BE085487, Z39341, BE908553, AA430674, BF002645, T96081, AA404569, AA884361, AA338639, and AK021918.
HLTAG56	1324	905871	1 - 1878	15 - 1892	AL522360, AL535070, AL533539, BE513187, BE748937, AL527769, AU142389, AL527179, BF939920, BE907388, BG035384, AW961017, BF035835, AL535071, BF026662, BG178845, BG116692, BE903282, BE908472, BE389936, AL520396, AW083127, AW327290, AL533361, AW410645, AU146089, BE205822, BE275255, AI798681, BE074372, BF063649, AI797284, AW183981, AI096678, AI092936, AI144400, BE867172, AA235980, BE538766, AI685511, BE516089, AI074319, AI860643, AI885247, W46771, AW513360, AI521427, AW295119, AW327628, AW273299, AI801043, AW300673, AI095832, AA745647, AI457885, AI399827, AW137947, AA813851, AI924126, AW295118, AI381953, AU141402, AW029034, AI393856, R43938, AI811198, AW151914, BE383284, AU119853, AI458562, AL527770,

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HWLHJ13	1325	905994	1 - 1172	15 - 1186	BE868917, AF1799005, A1478852, BE219940, BE292871, A1825946, BE504345, BE869001, AW205093, AW502646, BF673844, AA639927, A1684054, AA634246, AA630382, BF221675, A1193494, BE841277, A1873043, AW579030, T94447, AA573526, A1566445, T98050, AW294597, T98141, BF334618, BF757622, BG150516, AW859231, T94534, A1940596, A1940601, A1922766, AA931283, AV691865, T24595, A1623271, AA648186, A1023258, BG231887, AW859234, AW369427, AW176607, A1971154, A1888177, BG014399, AW579093, AA992910, BE771632, BF757402, AK000460, AF061022, and AF061024.
HDQPN32	1326	906000	1 - 1453	15 - 1467	BF030094, BF915407, A1431931, AW080430, A1246316, A1434289, A1963929, AW013871, AA972267, BE974051, T96157, BE763960, T93692, BE045646, AW291840, AL110151, and AC006479.
HOHBT28	1327	906114	1 - 624	15 - 638	AU118919, AF107454, BE790376, AA018301, AA307511, BE244926, AL525109, AC007097, AK021727, AF190665, and AF190666.
HAQCD43	1328	906145	1 - 1038	15 - 1052	BF529722, BE875979, AW954217, BE738333, BF792671, BE785505, BE876237, BE873075, BF340317, BE734057, BE789549, BE395207, BG025158, AL532494, BE614806, BE614883, BE396147, BE253565, BF737302, AW238972, AA806231, BG012029, AA044211, BF901660, AW796084, A1537196, AA044081, BF738993, BF056207, A1683820, BF446055, BF812968, A1819836, AL532493, A1424071,

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HTPCP50	1329	906161	1 - 2183	15 - 2197	<p>AI024852, AA724866, AI024874, AA296694, TI0363, H00259, AA370362, AA364110, AW959554, BF789905, AA487827, BF156012, AW604713, AW604716, AW371737, T92143, AW382068, AW371674, AA428201, AL356048, W68208, T24766, AA429137, AF192403, AF192401, and AF192402.</p>
HWLCI12	1330	906285	1 - 2319	15 - 2333	<p>BF691828, BE566444, BF207929, AI632964, BE463583, BF208992, BF541607, AA826324, C06338, AI547059, BE568426, AA622862, AI890787, BF029268, AA775044, AV706527, BE928360, AV707401, AV706532, AV702854, AV724987, AV727822, AV728455, AV702728, AV704116, AV704974, AV727103, AV708991, AV645545, AV707088, AV709273, AV703090, AV728715, AV727459, AV701728, AV706882, AV726628, AV726559, AV729473, AV651897, AV725031, AV650367, AV691615, AV706741, AV702869, AV726787, AV703515, AV645778, AV707798, AV705416, AV704592, AV705299, AV687909, AV689800, AV656240, AV728997, AV702798, AV709935, AV706223, AV706992, AV706104, AV706891, AV647654, AV702787, AV705234, AV706025, AV707942, AV704916, AV701538, AV705047, AV701496, AV709407, AV703436, AV703012, AV702832, AV725321, AV728546, AV685688, AV652156, AV692972, AV702954, AV707948, AV701874, AV705684, AV704924, AV707510, AV707420, AV707639, AV701499, AV727029, AV651503, AV728270.</p>

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HTHCK88	1331	906306	1 - 2303	15 - 2317	<p>AL530935, AU132769, AL048903, A1678076, BF527660, BE728354, BG253760, BE297579, BF317174, AL524551, BE409263, BE313085, AL530934, AL042801, BE729268, BE885728, AL041340, BE314879, AL042802, BE383358, AW190561, A1961484, AU154235, AW027201, A1424792, AL524550, BE259667, AA864499, AW732625, A1432437, AA917094, BE327057, A1934618, A1499074, A1344032, A1955647, AA572961, AL048902, AW769938, BF509684, BE208853, A1366484, A1342638, A1761488, AW974120, A1564533, W51904, A1168435, AW961340, A1289643, AU126961, AW971194, AW272378, A1867205, AL039675, A1796156, AA884306, BF927739, BF002574, BF869582, BF847648, AA456581, AA918441, A1766564, AA426295, AW769937, AA493778, H67555, AA322347, AA304712, AW178871, AA298993, BE273248, AA377693, AW769673, BE140495, A1383037, AA221032, AA713594, BF918942, BF918936, F24965, AW797208, AA322180, AA322590, A1940682, BF919436, BF919454, BF919453, BF919451, A1538564, BF752997, A1766348, A1701097, AW080090, A1367680, BF812961, A1619820, A1633125, A1828682, A1818240, AW152182, BF811804, A1796113, BF968679, BF669151, A1800648, A1500714, T07909, A1702073, A1884318, A1590043, A1868680, BG122005, AA740450, A1866469, A1971615, A1345415, A1934259, A1570056, A1433157, AL046466, A1819545, A1499570, A1698391, A1915291, A1434731, A1440448, A1445829, A1889189, A1638644, A1370623, AW188525, AW008226, A1699823, T69241, A1635634, AW148363, A1818350, AW089844, A1686817, A1376425, A1609375, AW051088, A1744268, AV736995, BF970652, A1569637, AW163834, A1270295, BE393784, A1471282, AW075381, AL043355, A1872423,</p>

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HSKGT01	1333	906487	1 - 575	15 - 589



HTAIJ50	1334	906718	1 - 2527	15 - 2541	<p>BE899132, BF974503, BE745971, BE741474, BE512798, BE740840, BF793368, AL524716, AL524717, BE271604, BF204868, BE740264, BF238214, BE872021, BE545246, BE747082, BF663868, BF129041, BE271970, BF815297, BF034885, BE676712, BF732782, BF663799, BE272572, BE336644, AA683481, AW965883, BF128962, AI692400, BF238040, AW574880, AI290663, BE220608, BE562118, AI813735, AW007923, BE562263, AA632158, AW402676, BE378315, AW664458, BF446794, AI813810, AA781877, AI859765, AI199578, AA451993, AI185159, AW405591, AW138624, BE562122, AI907739, BE513965, AI765304, BF891354, AI692912, AI809143, AW873078, AW780301, N36152, AA706980, AW408467, AI673795, R43911, N36173, AW873086, AI694105, AI609752, AA938331, AA988379, W02226, BF740005, AI033720, AA530997, AA427862, AA714359, AA464240, BE246038, AA809567, AA701952, AA633571, AF009747, H99300, AW055311, AA937972, AA806446, AW512472, BG107308, AI373187, AA837900, AW583244, AA058710, AW401686, AI168434, AW583799, BG055948, N25845, R78273, AA292575, BE744517, BG007593, AI431729, R18801, BF433880, AW368604, AA658130, AW405405, AI914063, AA085565, BF817948, F32897, BG005920, BF821845, BG006191, F10944, AI686182, R78272, AA057265, BG008044, AA853743, R98243, BE272119, W32550, AI556963, N42680, AA297912, AA182006, N42929, AI659545, AI631698, AI655212, BE260535, BE312785, AW197261, BE246497, AA298972, AA297985, AA302993, BF376525, AA464348, AA066640, BE260497, N44152, BF038397, AV710096, T77313, BF315931, BE206209, AA235467, BE872650, BE261058, BF312765, N44162, BE563627, BE246466, BF591598, BE313411, BE383145, BE208274, AA310646, F13348, BE261460, N76224, AA908429, H99299, BF089972, BF312549, BF797084, BF339019, AI631977, AA908294, BE888844, BG255030, BE061378, BF339322, BE877769, AI784214, AI571699, BG253986, AI972170, BG034746, AI628851, AI860027, AI918634, BE780904, AA748353, AI690813, AW167146, AI471227, AI479292, AI888665, AW196078, BF032910, BF752892, BF822127, BF911528, BE874133, BF526117, AW673679, BG122101, BE889355, BE783752, BF816031, AA641818, BG117653, BF814447, BF032768, BG254745, BE875243, BG029053, BF753053, BE047952, AI783569, AA761557, AI932638, BE892572, BF033366, AI918408, AI863382, AA715307, AI815239, AI043089, AA809974, AW167222, AV755207, BG029058, AI440238, AI583578, AL525204, AA195940, AA804877, BF343394, BF184587, BG179438, AW409772, BF344507, AI926593, AV758017, AI652336, AV712838, BG035423, AV713908, AV713988, AI681952, AK024953, AK025870, AX011622, AK027115, AK000432, AP001699, S36676, D44497, U83980, A012755, AL133069, Y10655, AL157431, U49434, AC002500, AR083279, AL137656, AF141289, AF199509, S61953, AF153205, A08913, AL389935, E12579.</p>
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HTEK148	1337	906879	1 - 1825	15 - 1839	<p>BG120166, AU140711, AA861915, AW270710, D31054, AA318116, BE908185, AA146739, D31077, AI000735, D31287, D31360, D30987, D31063, D31067, AU140525, AI356440, AI620666, R94909, AA135761, H94979, AU158859, AI078409, AA838091, AA847508, AI285493, AI310992, AI300818, BF926426, AA847427, AI653783, AA702717, AI791659, AI246996, AW272389, AI915081, AA228442, BF805088, AI620992, AW157005, AA171892, BF876674, AW275432, AA664126, AI028510, R79396, AL045476, AI800426, AI355246, AW328446, AU159185, M77964, AA302978, AA484892, AI031759, AI049504, AW302017, AA992126, AW020150, AI537368, AI521525, AW151247, BF901147, AV759632, AA714011, AA533054, AA810158, AW979295, AV762975, AI061313, AI277373, AA831408, F23327, AW974363, AA829565, AA015948, AV764001, T74524, AW074223, AI278440, AA676592, AA206707, AA085410, N63149, AV764406, AV759971, AI537800, AA515176, AI431513, AA715173, AA715075, AI278972, BG034698, H91062, BE392753, AA632765, AW013787, AI709174, AA846923, H57752, H54706, AI299442, N71619, AA657835, AI926102, H02532, AA487209, AL044701, AA513780, AA668362, AW150387, BE327876, BE501670, H63660, AI732502, AA862312, AA568949, AI124798, AW028376, AA302661, AW274078, F35684, AW978041, AW303052, BF991881, BE246411, F34506, AV761486, AW502796, AI355103, AW328202, F23338, AI821645, AW341978, H84412, AI587349, AI859906, AW272815, AA084609, AA354695, AV760615, AW467497, AA857673, AA019003, AW194046, AW511778, AA635150, AA502110, AA568204, AA570740, AU158351, AA483606, BE856399, AA831714, BE300991, BF845126, AU159566, AI254779, AA229823, AV762245, AI962030, BF817511, AI334896, AW769221, BF991882, AV718585, AA338289, AW872676, AA152398, AI332615, D31762, AL049611, AC007192, AL121989, AC011490, AL136105, I34294, AC005067, AC006120, AC007546, AL117334, AK023869,</p>

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HUVFI01	1338	906880	1 - 1366	15 - 1380	BE908185, AA368455, AA861915, AA367693, BF329956, BE838501, BG120166, AI000735, BE818784, D31762, and AL049611.
HHAOD94	1339	906886	1 - 867	15 - 881	BE614475, AV960560, BE788855, AV728059, BE865963, AW978143, AV696408, AI042012, AI309836, AI927975, AV692206, AA909011, AL529245, AI435369,

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HAGGF22	1340	906890	1 - 1008	15 - 1022	AL529245, BE879682, BE904974, BF694328, AV714149, BE886046, BE781669, BF212797, BF668915, BF211500, BF208449, BF029660, BF690906, BF103549, BE565391, BE565626, BF211073, BE567085, BF530881, BF574941, BF207871, BF672390, BF184621, BF210595, BF239234, BF213084, BE788855, AV696408, BF677397, BF672085, AV692206, BE613870, BE565691, AV721198, BF669008, BF693944, BE958210, BE567812, BF217631, BE566185, BE865942, W37976, BF132353, BF754702, AW958198, AA165446, BF667487, AA167074, BF574268, BE926436, AA446795, BF028978, AA167433, AV728059, BF240004, AA292252, BF241795, N40739, BF217280, BE865963, AW630584, BE614475, BE567899, BF029339,



HLJDM86	1341	906945	1 - 1024	15 - 1038	AA460569, BF027765, BF218193, BG170146, AA173470, BF698746, AV729106, BF217310, BG170232, N36033, BF244908, BF217003, BF247359, BF851236, BF208304, BF086448, BE567327, AA166930, A W604559, A1750420, BF208334, W47186, BF696659, N75132, BE567889, BF851329, AA253190, BF244900, AW389517, R31063, AA334848, AA344673, AA005078, AA079814, AA304600, AW978143, AA329536, BF695321, BF215923, BF239697, RS8189, BF696911, AW960560, BF208918, AW392722, AW934764, AW605000, AA090011, BF738903, A1435845, BF002030, AW510857, AW466951, A1435369, A1123581, A1379585, A1379067, W21391, AA377054, BE157567, BE184246, BF245946, BF993950, AA026906, BF849551, A1305828, W37757, A1927975, A1042012, AW129508, AW024836, A1309836, A1378473, BF754843, BE157582, BF208981, AW129517, BF513222, BF758968, A1302632, AA004875, BF216171, AA828292, AA523865, AA165447, BE565284, A1979048, AA805281, BF239904, BE147734, AA903029, AA688151, AA724150, AA743282, AW241799, AA093426, A1261287, A1275564, A1480120, AW057808, AW090552, A1803108, AW055277, AA974746, AA931977, AA432110, AF220193, and AX014830. BF183063, BE563477, AV714909, BF694698, BE264399, BF309297, AV718354, BF790702, BE618507, BF574309, BG117601, BF126262, AA081317, BF791060, AW963352, AA081069, BF669379, BF696374, BE546641, AW998561, BF672527, A1760705, AA0613352, AA583555, BF696260, BE254980, AW516799, BF106200, BF693973, AA613825, BF672626, A1889240, AV757965, AA587284, BE872261, AA083412, AV757328, AA808601, AA081316, A1038580, AA081068, AA582220, BF693705, BE741227, AW339067, AW873560, AA002210, A1241025, A1589815, AA702349, BE206002, AA706461, BE222625, A1339472, A1278615, AA810681, AW969788, BF969029, C15625, BF576801, A1300351, AW629783, BE932023, BF477369, BE968768, A1002420, A1246117, A1204990, AA576532, AA535219, A1254335, BE207918, AA126891, BE932022, BF802514, AA047389, AV758059, AA757504, BE019124, AA491648, BG178573, H24548, AA552624, AW166093, AA291782, W65448, H21199, A1695529, R94014, AA588653, AA612737, AA047388, R93970, AA258634, AV748351, AV757264, A1093359, AW338867, F24073, BF058459, AA635784, AW089945, A1364149, AA341867, H49123, W56776, H56519, W72672, AA972572, A1977835, T78543, H38957, H39163, D81084, A W472827, AA860220, H42518, AA976833, AV733987, AA303509, F33199, AA373213, A1961781, W23242, W65449, AA341866, BE408555, F28531, A1362352, AW104215, BG165993, A1565548, BF855571, AV756580, H49058, AA322301, BF378518, AW369291, A1243405, AW572771, H43518, BE939435, F18517, A1989915, A1184202, H78051, AA620904, A1203360, T68394, AW057890, AA095300, A1972971, A1219198, BF693179, AA294896, BF680134, C02623, AA056395, A1191986, A1420162, W56729, AA772764, D81309,
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HTJMG26	1342	906957	1 - 1107	15 - 1121	BG121400, BG118404, BF306259, BF528723, AA481719, AW949841, BE829270, BE299893, AA378941, BF528144, BE843780, BE938337, R48482, AA378942, BF205635, BF312731, BF968921, BF869691, AA453537, BE257879, BE902633, BF918415, BE276412, BE874333, BF981372, AW602596, BF965837, BE747984, and U62317.
HDPZ04	1343	906960	1 - 999	15 - 1013	AW963155, AV721179, AA535015, AA361063, BE175194, AA361359, BE568285, AI741964, BE766706, AR035946, and AY009090.
HNTND88	1344	906998	1 - 2118	15 - 2132	AW974565, BE463838, BE896596, BF110512, AW401563, BF132071, BF906106, AA778112, AW043761, BE622903, N92222, N9087, AW025041, AI650274, AW611842, H00110, AI498392, AW591259, BE940082, T77228, BE707498, T90917, H05042, AA814016, T77441, Z45154, AA927671, AA649015, Z21390, Z21389, BF954192, AA282015, BF949965, N64488, AW771200, BE622071, AA824472, BE766287, AI907811, BE002253, AI011863, AJ133721, AJ242864, and AL133517.
HUABT11	1345	907007	1 - 1588	15 - 1602	BF526575, BF340843, BE617621, AW007033, BE616972, AI420450, AA310512, AI742814, AW272594, AI632431, AI360129, AI129711, AI473688, BF513674, AI369881, AW205204, AI871183, AI969609, AA310177, BF000580, AA161488, R43162, AW865787, R49031, AW956079, AA809519, AA371832, AA353952, AW865615, AA364455, AW955845, AA365292, AW593991, AA367338, AI088287, AA335911, AI950476, H90387, AI620424, R37467, BF892009, AL117495, AC025605, AC025605, and AC025605.
HOUUCY70	1346	907030	1 - 1469	15 - 1483	AL533390, AL529681, AL528191, BF966448, AL523718, BF966576, BF115284, AL528190, AL529855, BF115429, BG120879, BF304689, BE728367, BF304827, BF305469, BE793198, BE297311, AV704155, AW993505, BE789342, BF026199, BE785817, BG114227, BF316927, AW993825, AW993830, AL529854, AW960096, BF831956, AI743647, BE386416, BF727063, AI923650, AI860279, BF057404, AW965178, BE260405, AW005358, AI146421, BF928251, AI093908, BE047374, BE813316, AI769656, BE265484, BF747949, AA605064, AI241016, BE277343, AI148817, AI318082, AA565734, AI630731, AW025017, C17555, AI566682, AA843395, BF838669, AA506224, N31961, AW134754, AA749014, BE774133, AA827318, AA346026, F36487, AV750102, T49220, F31348, W31773, W04672, N31991, AI827206, AI630730, BF990595, AI678457, BF955698, AA879426, AA120831, AA948142, AA345290, AI685001, BG007518, BG011225, AA120830, BE774243, BE073338, BG004311, BF155353, T49219, T39496, BE774391, BG007508, AW374473, AJ299442, and AJ297884.

HWAE133	1347	907053	1 - 1460	15 - 1474	<p>           AI143226, BE798123, BF792579, BG027947, BF512811, AW960702, AA074614, AW973179, BF793801, BF970034, AI816250, AI336874, AI359462, BF196595, AI920941, BF208847, BF683421, AW404001, AA041535, AI619673, AW080448, AA312966, AI248170, AA52215, AI864909, AI161255, BE393360, AW027101, R54079, AA613058, AA953791, R60168, AA426568, AI697713, AA082536, AI269146, AA989378, H21497, AA877154, H98486, BE563486, AI206064, BE396204, AI582707, AI587399, BF677141, AI144140, AA527643, AI282213, BF213405, BE832689, AW574900, AA376459, H29536, AI200580, AA329522, AW662882, AI927727, AA318044, AI263946, AA039912, AI223111, AI912507, AI829375, R49273, N40052, BF842875, AA091789, F36491, AA425093, R39339, AI557366, T24757, AI816330, R43134, R60167, AA873687, AI266123, AW361339, AW996248, AI872739, AI561274, BE714945, BE714961, R17888, N31309, F31801, H29628, BF904855, BG119615, D26032, C00043, N27118, AI005232, R54127, AI052315, AA301581, BE241764, N22922, H39166, R34889, Z42344, and AF118094.         </p>
HNHCM07	1348	907060	1 - 825	15 - 839	<p>           BE545073, AJ003572, AP001065, and AP001754.         </p>
HELGY02	1349	907105	1 - 4289	15 - 4303	<p>           AL537332, BG248293, BG180938, BF530592, BG036300, AV687059, AV713521, BF309002, AI902578, BG255127, AW961656, AV713522, AI688582, BF033768, AI449775, AW961690, BE222964, AL449520, AL449853, AW379424, AA777773, BE074312, AW369760, AW817922, AA703884, AI907963, AW469363, AI423137, AI972020, AL449774, BG180714, BE763237, AA916666, AL449776, AW385387, AW385386, AW071058, AI908566, AV657574, AI356198, BF215093, AW571570, AL449852, BG056230, AA308054, N26808, AA088691, AW152059, BE869116, BF058599, AI905077, BF091968, AA424942, AI694175, AA747032, BF511716, AW074054, BF058917, AA625170, AI985668, AA937352, AI336688, AI160378, H49126, AA227090, AA865313, AI283958, AA506775, AA043012, AI093888, AW591247, AA612659, BE869597, AW814515, BF058919, BE009973, AI040102, AI632877, AI872785, BE138844, R91358, AA506766, AI634278, AW750450, AW084196, AW591257, AI205158, AW814523, AW887630, BF951557, BF987510, AA424941, AI207271, AI449521, BE719403, BF802463, AA347025, R14440, BF350102, AA294950, BE669443, BE930340, AA226793, N39498, BF925727, BF839347, AA323130, BF840126, BF840116, AI678509, AI824415, AA716420, AI905195, AW380731, BF951628, AI207949, BE932832, BF089218, AW511665, AI449517, AI449850, AA347026, BE933440, AA337170, AA295197, BE870271, AA304723, BE697774, AL044263, AL449851, BE714259, BE774940, AA332792, AW841996, AW814519, AI524587, AI682702, BF754877, AI537066, AI301807, C00596, AI939550, BE167292, AW799520, N68237, AW799639, BF351410, BE714206, T24948, AA223662, AW817566, BE714385, AW841997, BE697747, AW881813, AA042886, AW817547, BE714392, AA506788,         </p>

HTAFC46	1350	907218	1 - 710	15 - 724	AW188897, AA506790, AW517462, AW385396, AB033073, AL133001, AL034418, AL121777, AA494379, and AL633048. BE312559, BF314071, AV690059, BE068804, AW366386, BE707038, BF350952, AV698838, BF359015, BF350939, BF884094, AW149741, BE177434, BE814246, BF352350, BE931536, AI077488, BF987117, and AK024996.
HRADL67	1351	907233	1 - 3949	15 - 3963	AU117742, AU131411, AU118148, AU123586, AU125301, AU19889, AU123800, AU119764, AU139552, AU131384, AU133198, AU134838, AU121056, AU138221, AU139208, AU136271, AU137377, AU114486, AW149501, AU133881, AV702813, AU135345, BF793684, AU128114, AU123493, AI676177, AU138746, AU146113, AW954670, BG027795, BE539265, BF968029, BF246292, BE907443, AW366152, AI264321, BF035348, AW007145, AL043600, AV734239, AW262031, BG177703, AI913362, AI809112, AU154494, AW439637, AW274948, BE545745, AV716220, BF576792, AA528650, BF677952, AV734173, BG117467, BF431901, AW962778, AW954329, BF032312, AW365592, BF035872, A769386, BF815925, AI861995, AW993642, AW957290, AW262046, BF891910, AW304221, BF032821, AU146961, AW088767, BE999985, AW803561, BE815133, AA488372, AW270549, AA131841, AV681644, AI751098, AU123402, BF812944, BE885546, AI417167, BF475544, AA176233, AI279263, AA032181, BF891892, BE882148, AL042007, AI753126, BE813363, AU152464, AW361159, AU154454, BF589859, BF673032, BF694378, AW631121, BF892001, AW866965, AW021494, AW370294, BF892000, AI751099, AI635275, AI828400, AW298688, AI954976, AW853329, AW772486, AW088237, BF108754, AA489879, AW088533, AW794968, AI554278, AA994206, AI378180, N94529, AI956030, AI341810, AI283284, AW272723, BF697268, AA179494, AA179544, BF751906, AW572262, AU153148, AA947267, BG260830, AI225127, AI961066, BF672509, AA780586, AW029520, AI082442, AA131810, AA464824, BF057738, AI129837, AU158071, AI078756, AW803560, BF155374, AA131791, AI753674, BF672202, AI476626, BF338523, BF983647, AA082761, AI088460, AA122245, AI559651, N40983, AA613946, AA075711, N24153, BF673079, AW473312, R51676, AW152173, AA248233, W46377, AA782289, AI621172, AW189239, AA447159, BE928765, AA491455, AW615021, BE464786, AW150265, AI688932, AA081106, BF739297, AA443787, BE463667, AA100948, BE879171, BE156528, AW303903, AA715420, T71302, BE003463, H12095, AI750347, AA081203, AA307456, AI888370, BE815129, AA598996, BE542657, BE706451, AI927255, AW979155, AW168975, AA554742, W46205, AA906052, AI651058, AV720700, AA774052, AW069272, BF807817, BE003445, AA313231, BF807740, AA580843, BF901485, AA780297, H00132, H95033, AW380447, AI687631, AA127351, AW022573, AV757316, N22607, AA127352, AA114152, N44992, BF817651, AW302346, AA376293, AW771338.

AW812765, AA370606, R13430, A1750372, H05061, A1200617, A1873904, BE156534, AW130743, BE089341, AA034524, BE141809, AA424618, BF330094, BE141241, AW807657, A1584085, T55687, AW058451, A1205266, BE141142, BF941335, AF116620, AK001700, AB037803, AF298897, AF116669, AF249673, AF273024, AF173682, AC008014, AB016226, AL137658, AL353957, I89947, AK026642, AF314091, AK027113, AK026522, AL133113, A65341, AK024538, AL117460, I48978, AB049758, AL137488, AL389935, AF116631, Y16645, AK026927, AL133558, Y79812, AL049382, AB052200, AB041801, AF158248, A65340, X80340, AL137479, AL133067, AL122050, AK026506, AL080234, AK026480, A77033, A77035, AF031147, M27260, AK000718, AL133665, AX027129, AK026542, X84990, AK027096, AK026959, AK026583, AF111851, AL137550, AK026504, AK026894, AK025375, A08916, AK000137, AK026528, AL162004, AK000652, AF114170, S36676, AL133081, AK026741, AF130066, AR013797, AF119899, AL137557, AL050024, AX017991, A08913, AL137459, X06146, AK027164, AL133104, U53505, AF130105, AL117394, A08910, AK027116, AK024524, AL110196, AK025414, AB048974, AK025491, AF116646, AL133075, AF056191, AL133619, AL133637, AF119909, AK025092, AR034821, AF104032, A86558, AF116682, I48979, AR020905, AF119883, AF218014, AL137271, AL050393, AL359600, AF113019, X82434, A08909, AF100931, AK000432, AB050410, AK000690, AF111847, AF177401, AL049283, AF183393, AK025465, AF090900, AF008439, AL353802, AF116639, AF113677, A08908, AF177336, AX045627, AL389982, AK000647, AL117457, X93495, I00734, X72889, AK024594, AF155221, AF119894, AF113690, AF097996, X62580, AF130100, AL162006, U87620, AF130087, I09499, E00617, E00717, E00778, AK025967, AL050138, AF113013, AL18777, I89931, AF090943, X72387, AF067728, AX042059, AF215669, AL133080, AL359583, AK026947, AK026613, AL389957, AL133640, AL110221, AL133568, AF130110, A15345, AB019565, AL117648, AK026630, AR087170, AL162083, A1000937, AF118090, AF116654, AL137529, AF130077, AL389951, AK026532, AF102578, AF078844, AK024992, AL162003, AL122111, AF119875, AL162062, AL133072, AB052191, X81464, AF130059, AL122110, AF090934, AK000247, E05822, AK025339, Z72491, Z82022, AL137648, AK027204, AL359601, AF090903, A03736, AR038854, AF119896, AB038698, AL359941, AF116688, AX019230, AL117649, AB050431, AL023657, A08912, AB047904, AF017437, AL080137, AF106657, E02221, AF057300, AF057299, AL050116, AK026592, AB049848, AL133560, AK026534, AF116691, AF207750, Y11254, AL080159, AL390154, AK026744, AF111849, AL050149, AL137558, AF090901, AL122093, AL096751, AL117435, AK000486, AL080163, T40360, T41217, T48055, T54140, T54236, T55605, T71443, R21187, R21836, R22805, R27255, R27457, R32731, R32732, R33830, R33879, R34166, R34790, R40942, R40942
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					<p>R65860, R76715, R80048, H12096, H42622, H93998, N24862, N68134, W30754, W74015, AA031981, AA032011, AA033656, AA081604, AA084455, AA113863, AA129180, AA131777, AA176321, AA188816, AA228705, AA588571, AA664787, AA720525, AA728805, AA730793, AA836530, AA913305, AA916890, AA935302, AA947363, AA642013, AA089634, AA654510, AA214323, AA214164, AA214413, AA214414, D11838, AA450296, C75177, AA599984, AA844166, AA883641, Z38723, Z42531, D29105, D29471, D11627, A1358614, A1364432, A1367281, A1440275, A1446275, A1538202, A1272670, and A1669361.</p>
HDPQA54	1352	907253	1 - 1422	15 - 1436	<p>AW612141, BF196066, BE221739, A1247270, and AR035943.</p>
HCFC840	1353	907375	1 - 4398	15 - 4412	<p>BG164191, AL135185, BF983123, AL041280, AV645574, AV687584, BE788908, BG250650, BG115164, BF342638, BE876977, AA702184, BF671348, BG248849, BF351087, AA152030, AW474133, BE539165, BF513442, AW269763, A1962971, AA935874, A1150109, N34238, BG169542, A1554409, AW007775, AW468469, AA890008, AW021321, A1082758, A1922307, A1199306, AA282370, BE547356, BF248155, BF374008, AA037349, AL041279, A1688218, N22419, AA278551, AA406318, AA152104, A1367278, A1797211, AA203606, AA258062, AL038734, AL038733, A1089356, AA884389, AA017390, BE930063, AA233026, AA661741, A1082269, A1770119, A1824725, N31270, AA421935, A1027376, BF352616, W39547, AA918822, N25640, BF352611, A1027020, AW876088, N39100, AA911009, AA836812, AA992896, H04053, AW876064, A1002479, R55560, AA970541, AW995402, AA332109, AA806318, AA759257, BF885893, BE177081, AA232852, AA593839, AV697997, AV695832, A1797333, R68540, AV690252, H68957, BF926234, AA485458, N22883, AV734002, AA337924, BF820595, BF926247, AV694870, BF820597, AA384849, W44899, AW241214, H65584, H03366, Z19311, R67924, AA017389, R55321, T67446, AW243674, BE048922, N70432, AW876067, BF759974, R68246, T96801, T96685, AV696911, AA236633, AW965295, BF763395, AW876091, BF927515, BF820591, AA376097, AA994146, BF858626, AA336479, R36914, BF755224, F00568, N48457, AA282020, AA094925, BF735336, T69479, BE714862, BF126700, AW103805, AW799660, BF924148, BE165021, BE542967, BE161951, AX013176, and AC009778.</p>
HBINS69	1354	907522	1 - 1506	15 - 1520	<p>BE744673, BE798562, A1885021, BF125194, BE272386, BE900634, AV704849, AA847540, D79183, BF984445, AA056301, A1743182, AW964737, AA662370, AA628098, BE798920, BE896215, AA805301, AW085647, AA020747, N25407, AA324846, A1338738, BE278163, T08103, AA470718, N20503, AA905832, AA453580, AA021086, AW801726, H39227, AA758607, BE280813, AA866217, H47609, AA022758, AA464399, H97699, BF196339, T81265, H85035, H16214, R89033, BE900826, AA019794, H84973, A1743505, AW375043, AA861258, BF752258, AA308868, AA013293, BE901092, H16215, R38881, AW998123, AW998127, AA974506, BE560672,</p>

					AW998124, AW998121, AI337504, H47693, AW998125, AW998120, AW998126, BF217168, AA331372, AW821670, AI568114, BE879967, AA830709, AI513723, BG108406, AI682798, BF340889, AI925404, AI569975, BF724894, AW193026, AL514063, BG110509, AI514015, AI590686, AV656595, AI207656, BG105240, AL515195, BG058052, AI685080, AI580290, AI698391, AV758209, BE883170, BE963691, BF526020, AI874261, AI345612, AV692771, BG112718, AI345415, AL037030, AI446092, AI446373, AI567846, BF667290, BG001293, AA502794, BG111673, AW129264, AA788861, BG001235, N29277, AI567944, BE544111, AI119863, AV755713, AI345416, AW083374, AI636137, BF872663, AV658585, AI648508, BE963872, AI866770, AI288285, AA470491, AI045360, BE048238, BE964999, AI890907, AI538850, BF812960, AI866469, AW630386, BE018334, AW020419, AI499974, AI242248, BE892835, AI627893, AI766348, BG030915, BE963838, H89138, AI873638, AI884318, AW160916, AI673363, AI285586, AI689388, AI1184903, AI612750, AI470293, AI565125, BF750879, AV756256, BF868489, AW168503, AV743631, AI539800, AW026610, AW129659, BG027967, AI824576, AI623682, AI515191, AW190286, AI874243, AI245008, BE966699, AI609331, AI365256, AW089640, BG180273, AI633477, AI866111, AI702406, AI046942, AW129929, BG151388, AW020397, AI121041, BF792961, AI513817, AW827106, AI802542, AV711124, AI678446, AI445588, AI688918, AI961589, BG029829, AW087462, AI829990, AI514359, AV756148, AW827289, AW058233, BE965415, AW023338, AW167086, AA908294, BF035653, AW089275, AI932794, AA580663, AI376872, F37439, AI277325, AI659795, BG112239, BE543089, AW131999, AI624529, BF814449, AI631216, AI120676, AW403717, AI919500, AI619992, AI915291, AW002342, AI042745, AI039086, BF924884, F37323, BF750886, BF794025, AV704109, AI933992, AI623941, AW169848, AW827204, AI690946, AW089006, AA493923, AI633125, AI934000, AI360165, AC009484, X79812, AI133075, AB047878, Y10655, AF067728, AX042059, AI133624, AK026855, I89947, AF026816, Y10080, U67958, AF183393, AI389957, AI389935, AF119899, AK026164, AI117649, AF061795, AF151685, AI133113, A21103, AF036941, I48978, AF113019, AF118070, AI157431, AI162083, AF116614, A08916, AI137550, AI122045, AI137479, AK026408, AF119883, AK026504, AF217966, AF130077, AF267849, AI117435, AK024594, AI137557, Z82022, AK026630, AK026924, AI117440, AI122123, AF090900, AF116698, AK027081, AK026583, AI050116, A03736, AK027204, A08913, AK025632, Y10936, AF130099, U78525, AF067790, AI389939, AI8777, AR059958, AB050410, AF159615, AI133016, A08912, AF030513, E02221, A08910, I68732, AF285167, AR038854, AF314091, S75997, A08909, Y11587, AI050024, AB047897, X63162, S77771, AI137488, A08908, AF111851, AI161953, AK027193, AK027182,

	HKGAO47	1355	907635	1 - 2412	15 - 2426	<p>           E01314, AL137658, AF175983, AF056191, AK000718, L04849, AK027113, AK024538, AF119875, AK026797, AF090903, AK025254, AL442082, D83032, AF116882, AF130104, AR083266, I89931, AB051158, AK000418, AJ299431, AF118090, AF210052, AF079763, AJ238278, AL137712, AL137558, AK000647, AL137533, AF158248, AL080163, Z97214, AF230496, AF242525, AK026462, AK024570, AR087170, AK000652, AK024524, AB047887, A77033, A77035, AK026651, AB047941, AX017991, AK025092, AK025491, AF242189, A08915, AL096744, AF111847, Y08769, AF137367, S76508, AF000145, AK026534, AR020905, AK000618, AL080154, AF177336, AK025209, X84990, I17544, AK025524, AL133010, AK025424, X53587, I89934, AK026532, AL133014, AL050277, AL137271, AF153205, AK025798, AK000250, AK027144, M27260, AK026526, AB024524, AF051325, A52563, U35846, U87620, AF267991, AF155148, AF113694, AL359941, AB016226, X66862, AK024992, AL389983, AL133640, AF143723, AL117416, AB048974, AL049452, AF026124, AL117578, AX006092, AF139986, AF207829, S36676, AL133558, AL137640, I33392, AB050534, AK000636, AK025958, AK000074, AB048975, AB007812, AK026627, Y09972, AF146568, AL050092, AL389982, AF008439, AJ012755, AF162270, I00734, AF094850, AK025772, AK027096, AF028823, AL080074, and AF155221.            AL516848, AL528521, AL532885, AL516847, AW953467, BE797036, BF971239, BE277256, BG030783, BE314534, AL524574, BG248512, BE274654, BE887732, BF980855, BG114238, AW952375, AL524573, BG168745, BG117496, BE408506, BF025874, BE251536, BF685821, BE407256, BF206705, BG122732, BE787761, BE160865, BF795032, BG031786, BE874538, BE302826, BE870602, BF315886, BE266639, AA625438, BE619329, BG032767, BE160871, AL515859, AL528491, AI114830, BE256065, BE501405, AW806578, BE613878, AI888470, AA460071, BE160926, BE384830, BE858432, BE018503, AA449625, BF980608, AW900336, BF991251, N30481, AW606819, AA453912, AA449364, AA181642, AA962493, AW238824, BF793448, AI541176, BE536961, AA303856, AA664410, Z45856, R91016, AA021128, R01296, BE302562, Z45333, T35285, F07972, BE879362, BF939656, AA876364, BE251889, AL515858, AA356807, AA453405, T09074, AA326030, R67734, AI753358, R58120, AA233437, AA181590, AW007020, R00170, R12025, AI541177, AA171676, AA071433, AW264634, T35906, Z44193, AI191796, AW844823, AI421512, AI025786, AW971230, AA493570, AI890440, AA096046, BE617049, AA740894, AI087296, AI357750, AI359043, BE966257, F05632, AI762115, BE302107, AW673743, AI969009, AA639573, BE964421, AI374649, N35575, AW082616, N28421, AI963705, AA256664, AA706251, BG112925, AA536062, R88757, AA910229, AW191063, AW021536, AI376207, R00171, AW338398, AA256647, BE300516, AI920903, AA862554, AR058922, AR058923, and AA169634.         </p>
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HMTB119	1356	907637	1 - 1887	15 - 1901	AU142702, AU119065, AL534353, AL521573, AL520886, BG261209, AU128570, BG105210, BE890380, AL525838, BE875026, BG171230, BF673691, D82449, BF029537, AL521572, D82382, AL520885, AW376421, AA129508, D82521, H08387, R50903, BE539381, Z21167, BF698848, W15176, AA356128, BE080252, T10839, AA361954, AA079011, AA371059, R13122, AA090366, H93896, H70501, AA234409, AA398807, BF853725, BE085643, BF057243, AA171920, AI681965, AW295732, BF222743, R06937, AW069716, AA278525, AW582778, BE551467, AI540236, AI126144, AW665698, R89794, AF077040, AK022931, and AF073344.
HPMGN27	1357	907728	1 - 899	15 - 913	AV747831, AV745151, AV749820, AV749111, AA435798, AU149616, R05725, BE614499, T84168, AI825005, C00159, AW937334, AF155109, AK001334, AJ271670, and AF069992.
HWLEP57	1358	907757	1 - 1235	15 - 1249	BG165370, AV692456, BF668554, BG165006, BF699229, BF664617, BF696359, BF666897, BE958515, BF666680, BF669635, BF542034, BE958350, BE958087, BF382058, BF700761, BF670202, BE958295, AW583705, BF246687, BF698234, BF697105, BF700216, BF665797, BF698503, H48650, BF029934, D60241, BF666952, BF701837, BF695871, BF032034, BF669697, BE958612, T50929, BF696365, BE959288, C15568, BE536963, BF695972, C15261, D81750, D81691, R24902, BF700708, BF697847, BF700926, BF665003, BF131792, BF698021, AV690200, BF381642, BF246840, BF666285, BE739347, AV686169, BF696358, AB041548, and AK027169.
HADGF57	1359	907775	1 - 2812	15 - 2826	BG110446, BE891269, BG110027, BG035236, BE731780, BF000371, BF002083, BF699552, AA203416, BE901012, BF668363, BF700122, AW468560, AI432381, AI472313, AW273216, AA456638, BF697167, N36310, AA002173, AI432405, AI093711, AI332435, AW513379, AI081893, AI276146, AW131136, BE709774, AI769316, AA490628, AI288215, AI925214, AI274062, AW272533, AI081206, AI564061, AI189285, AI018502, AW021180, AW512284, BE049226, AW103397, N24890, AW022522, AI627363, BF095661, BG179869, AA703639, H49171, BE973929, AV722359, H95212, M85398, BF197913, BF666693, AA320240, H68371, AW274140, AW305315, BE872984, BF982148, H60779, R62178, BF966361, BE934144, AW800606, AA303421, AV724758, AA320393, AL121248, H61001, BE087853, AA320244, BG178065, AA320212, H60780, AI143497, AA861862, T99655, BF589579, R64567, C15951, N67278, AI286184, R41271, AA629128, R07730, AA902645, AW272977, R37064, H68372, BE646330, AA296635, C21127, AA320458, AA228880, BE816050, AA320132, R07729, AI206521, AW131190, AW009618, T99057, AA759131, AW391393, AV713941, AW391388, AW391383, AA773496, AW391384, R06939, AA662337, BF834102, and AA700982.
HDTIC42	1360	907776	1 - 1501	15 - 1515	AL515760, AL518517, BF037353, AW131613, AI798698, BE856584, BG116789, BG110336, AV729019, AI659391, BG259433, AI383966, AI301904, AI141050,

					<p>AW051534, AI436572, AL518516, BE782794, AI423024, AI949462, AI765807, BF002684, AI860169, BE263704, BF038559, AI361220, AA669355, AI917250, BE855659, AI127630, AI206098, AV708539, AI025741, AA102584, BF590538, BG025061, AV713929, BE552015, BE467899, BE931563, BE908505, BF739931, AI379587, AV708793, BF508131, AI660603, AI092712, AI445710, AA232806, AW195884, BF970494, AI750128, AA773721, AI081798, AI858261, AI371779, BF727334, AW842934, AI379674, AL515761, AW958989, AA557338, AI246467, AI085334, AW205857, BG150106, AA446521, AI275393, AV724954, BE815162, BF381071, AI803647, AA534301, AI200736, AI275421, AA42342, AI532361, AA677318, AV719438, AW024979, AA780999, AI682250, AW797736, AA354775, AA400736, AA890704, AV724659, W20040, AI492629, AI378226, AA825312, AI623977, AI800704, BF211880, AW130062, AV750137, AI751864, AW003455, AW015559, AI751865, AI983914, AA885942, AA906852, AW051657, AA437265, AA773840, AI568957, AW190646, AI276712, N62947, AI278977, AA233861, AA232534, AI274077, AA708681, AA232099, AI222157, W74448, AV657169, AI559955, AA987704, AV726772, AA400461, AI225079, AI024657, R83674, AA235866, BF941920, R83686, AI241402, H27797, AW193093, AA970287, R83674, AA235866, BF941920, R83686, AW450241, AI363499, H51031, AV708338, BF514709, AW195372, AA928622, H28191, AV656529, AV726799, AA625934, AI916024, H52549, N63163, R83661, AA669356, AI769946, N91378, N79850, AW103180, T86281, BF063502, AI435315, AI208326, AI784521, AI350985, R79809, R83660, AV749408, T72660, T67465, R83685, BF887312, R83673, H28234, AA296079, AI471621, BF887307, BF813453, AV748030, AA315225, H51032, AW471026, AA364922, AA430360, F32350, AA306937, BE672340, R86312, T86380, BE312899, D79226, AI268212, H26813, AI910377, R86311, R79909, AI567136, AV751141, BF509547, W72762, AI203285, H60248, AI869518, H88268, AA918002, BF514715, R86296, H80916, AI567085, T72729, H28014, T96316, AA634691, AI471363, R86297, BE645725, AI284210, D20230, D58181, H52153, T99806, AW299944, T39986, AI758516, BE048710, T98500, T93486, AA095338, AI244569, T99911, AV728923, AI432316, AI583987, AW054877, D57273, AF136411, T69498, H88269, AA082118, BG055457, BF478006, AI093819, AI458482, AA495794, AI091031, AI583515, AW194818, AW780413, BF960944, AV735235, T98445, AR030960, AF171875, AF155650, AC010285, A84916, AA236068, AA644472, T11390, and AI342813.</p>
HHEX020	1361	907816	1 - 2433	15 - 2447	<p>AL527888, AL527889, AW976173, BE781680, BF343138, AL525819, AA702154, BE732112, BE884555, AI703131, BE551051, BG115556, AA702126, AI634536, AA777413, BE670816, AW187982, BE887877, AI694395, BE791388, AI248701, AA393120, AI298112, AA463417, AA463415, R43806, AA070569, AA714855, AW739437, BF881875, AA767682, AW000977, AI334193, BF763234, AI268559,</p>

						BF094236, AA463416, AI886057, BF508517, F34844, AA345992, AI872514, AW848503, BF096090, AL119081, AA412730, W27989, AW249027, AW379952, BF090941, BF096089, AW294156, AW379954, AA613181, BF725485, BF763254, and AL021918.
HWLGN53	1362	907823	1 - 964	15 - 978		BG035685, BF036212, BE742713, AW994510, BG007466, BF507549, AW411084, AA486046, AW578521, AW835293, BF516091, BF130207, AA136605, BF848868, BE896908, BF744854, AU124923, AA516307, F11138, BF842496, BE938679, H15601, BF987872, F11607, BE165978, Z42474, BE930181, AW994051, BE927278, W86355, AA852500, AW964551, BE711186, BE711149, BE711226, BE711156, AW887356, AA148171, AA320600, BE711214, AW887440, AW887446, BF209440, BE714496, AW977275, BE711239, AV735408, BE711222, BE707517, AA423899, BF799195, BE932135, AW370611, AW893707, AW068528, AU118342, AW805779, AA295674, AV656034, AU144929, AW805827, AI885634, AW450872, AA303426, AA094804, AI391670, BE927277, AA062714, AW068313, AI952411, H79980, BF695164, N36443, AW000989, AW411085, BF798200, AI094038, BF902081, AI989656, BE082064, W90311, AB020712, AF139184, AK001014, AX015344, AB018358, AB018359, AF034582, AK002161, AF161393, and AF161452.
HMJAH65	1363	907832	1 - 1078	15 - 1092		AU136724, BE779204, AW851685, BE785846, AV749614, BF365885, and AK001933.
HWAAAX3	1364	907899	1 - 532	15 - 546		AI968991, C04062, AV704509, AA255592, BF349408, AI735341, and AA249056.
HTJNG15	1365	908309	1 - 1790	15 - 1804		BG259817, BE268308, BE270476, BE042939, AI571743, BE514280, AV705060, AI422722, BE269234, BE397774, BF525749, AA001424, AI417323, AW118869, BF513373, AW016939, AI809555, AV298455, AA010080, AA047181, AA019642, AA452913, AI147059, AA019812, AA015780, AI028691, BF684837, AI204279, AA047817, AI221342, AA013177, AI094644, BF109069, AI924197, AI934630, AA018716, AA017459, AA015983, AI401304, AA018971, AA017562, AI157438, BG011200, AA021621, AA019376, AA021379, AA056255, AA453081, AI990912, H38930, R75791, AI467993, AA021211, R46277, H40627, AV694312, AA012872, H40674, BE266168, W95949, AW779248, AA016033, AA013143, AA015968, R71551, H85532, AI885549, H86280, R50258, AA054231, H86057, H86832, AA971907, H86597, AA021311, BE142666, AA012904, AA196221, AA059026, AI904546, T06751, AW366897, AA864534, AA019359, W19447, R71497, AA013488, AI669423, AI245102, AA016023, AI951143, N27369, AW956220, H37928, AA019046, AI809842, AA972948, AW576981, AI004979, BE562840, AI383509, AA046456, AA037712, AI247396, AA968612, R75792, H37783, AA019360, R46193, AA021572, AA020806, BE009638, AA057015, and AL079273.
HSDJA72	1366	908338	1 - 2525	15 - 2539		D62424, AA211157, T53618, D62427, AA329581, D62409, and D79516.
HMCHE75	1367	908383	1 - 1461	15 - 1475		BF813971.

HDTAZ43	1368	908412	1 - 1718	15 - 1732	AL537952, AL537247, BG031898, BG028180, BF968394, AL537953, AW269962, BF059389, A1335247, W27670, BE219024, BE220328, BF001690, A1968242, A1566115, A1654235, BF447729, A1292099, AA514672, A1074318, A1078807, A1684358, AW340345, BF000305, AL537248, A1927520, AW470534, W80358, A1971043, A1217656, BE246754, BE247625, BE247708, AW593022, BE772234, BF438791, A1027201, BE613515, W38023, A1366721, W78976, AW044408, BE772234, BF438791, A1027201, BE613515, A1936381, AW771481, BE676460, BE257658, W38024, A1420369, A1400105, AA485265, AW136965, AA634142, AW512515, BE856459, BF436853, BF002384, AA485264, AA007261, AA045262, A1479534, BE772294, AW469806, AA502308, AW135477, A1872996, AW195064, BE889328, A1761037, A1581404, AW445190, AA884366, W25972, A1928527, A1285045, AA971675, AW440060, BE501162, BE676873, BE151560, A1472122, BF475398, A1904882, AW841734, AW674223, H28966, BE966586, AA737030, AW971745, AW877209, AL119443, AL119457, AL119324, AW861944, AL042544, AW804686, AL119399, AW392670, C00169, AL134902, BE695785, AW604723, AL119418, AL119341, AW858526, AW577135, BE705903, BF868697, AW858525, BE705906, AW372827, AL134920, AW384394, AW861889, AW858455, AL119355, AW363220, AL119497, AL119319, AL134536, U46341, Z99396, U46351, BF868684, U46349, AL119483, AL119401, AL119484, AL119363, AL119391, U46350, U46347, U46346, BE705905, AL119444, AL119396, AL119335, AL119464, AL042984, AW604726, BF868687, AL119439, AL042433, AL119522, AL134527, U46345, BE705904, AW861954, AL037205, AL119496, AL042975, AL042450, AL042614, AL134525, AL134538, A1142131, AL042551, AL042965, AL043019, AL042970, AL042542, AL043029, AK026184, AB026436, AR080280, AX030435, AX046357, A1251859, AR060234, AR054110, AR066494, A81671, AJ279014, and AR069079.
HAAAN55	1369	908451	1 - 1579	15 - 1593	BE275695, BF881986, BE247567, A102097, A1028451, A1905887, A10130653, BF330599, AL043565, R24991, BF379692, BF380890, BF754617, BF379196, BE250682, BF330601, BF305203, BG002244, BF879736, BF328400, BF330600, BE301899, BE301888, BF826322, A1279874, AK000348, and D43949.
HBOD105	1370	908697	1 - 2494	15 - 2508	A1020941, A1021012, A1020592, A1020417, BE250269, A1126808, BF695058, BF671906, BF672129, BF671000, AW579877, BF671449, BF576332, BF574301, BF670252, BF790531, AW960122, BF791231, BF672754, BF574798, BF305501, AA418414, BF695105, BE156553, BF671961, BF575411, AW579872, BF670857, BF791312, BF671769, BF575478, BF790835, BF671792, BF671456, BF790846, BF672675, BF693805, BE156566, AA192617, BF671448, BF670273, BF672161, BF790545, BF693774, BF575066, AA418529, BF693658, BF672511, BF790297, BF695389, BF693831, BF791322, BF576965, BF671580, AA214096, BF576286,

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HAIJAH16	1371	908763	1 - 2651	15 - 2665	AW964117, BF740132, BG105986, BF109791, BF057138, BF196914, BF732879, AW192663, A1813485, BF529931, A1467996, BF732343, AW249671, A1823988, BE504839, BF114628, A1094671, BE858342, BG056192, A1336340, AW245209, BE675501, BE934409, AW957368, A1338167, A1452800, AW516845, AA312449, A1912974, AW136571, BF115245, BF434042, A1761673, A1859055, A1922047, A1151471, BE674600, AW770412, A1871294, A1565644, A1818821, AA858063, A1097651, A1910845, AA767239, A1498921, W56896, A1086438, AA255783, A1744679, A1921953, N38751, BF108724, A1807705, A1339666, BF111511, A1860241, BF516037, A1470016, AW593304, A1261514, A1084861, A1951827, AV721601, A1273326, BF940417, AA456816, BF507665, A1083921, AA026234, AA256005, AA427873, AA975841, AW044122, A1475887, BF111353, AW025647, H30863, A1128881, AA026233, A1312865, AA213700, A1369770, AA028002, H94766, AA193228, AA642716, AA999983, AW516946, AA504815, H38321, AA213665, N48386, A1262677, A1240885, AA350441, R73806, H94734, A1193895, A1864868, A1912007, H38289, AA603355, A1197899, A1372820, AW183825, A1768797, AA377943, AA236636, AW057949, AA350442,

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HOUDS09	1372	908843	1 - 2757	15 - 2771	AU137037, AU139724, AV726797, AF766046, BF690671, BF674420, AW027097, AU154613, AU156994, BF593240, AL675094, AA261857, AU145518, BF590675, AA283057, AL674897, AI805222, AI630208, AW779667, AA282968, AA806859, AA261858, AI143930, AV729051, AA812030, AL640791, AA043782, AA213657, AI126680, AA568974, AA760734, R81901, AA811337, AW075297, R80602, BE247635, R35243, AW470918, R80603, AA579814, AW862052, BF334467, BE696334, AA364260, BG059130, AA282903, R81797, AA736505, BF307232, R35242, T39358, BF205875, AW363736, T39326, T39307, T39316, T39341, T40517, AW891572, AA310137, T40530, R47799, T39334, AW858806, AW470926, AV740446, AV736720, AA713591, T39325, R50432, AI823527, R28674, AV739711, T40515, AA279096, BF332971, T40525, T40518, AW977629, R28533, AI761500, AK024343, and AK023700.
HLWAF59	1373	908860	1 - 1164	15 - 1178	BF571331, BF978217, BE878503, BE465716, BE087241, BF770582, BF904221, BF770577, AA765066, AW904295, R57163, BE082113, BF886035, BE090124, BF431480, AA383435, AW207393, BF842828, BF809745, AI806499, BF919493, AW105563, BF357584, BF880895, AW895015, BF875899, AW104025, and AC008795.
HCFNN18	1374	908915	1 - 544	15 - 558	AI434146, BF974514, AL136370, and AL096747.
HMSCR89	1375	909056	1 - 1817	15 - 1831	AL537236, BE742350, AW957168, AW978202, BE889240, BG114036, BG036215, BG260238, BF968302, BF971204, BF448428, AW070197, AI524194, AW172297, AA573499, BF196911, AW575715, AW170107, BE677830, AI674687, BF669345, AI904073, BE000558, BF434720, BF446056, BF432209, AW369632, AA290723, BG107632, AA731091, AA283710, BF854126, AA047400, N95583, T63128, BE042875, BE889285, AL537235, BF127599, AA694439, BE745186, BE171518, T09374, BF839735, BF732206, BF810523, AA324714, AA379483, AV271726, AA927565, BF529956,



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HDPCW53	1376	909101	1 - 1145	15 - 1159		BF794400, BG036879, AA306977, BE000969, BF352052, AW161063, AB037775, and AB037730.
HTOGI77	1377	909159	1 - 513	15 - 527		BE074857, and AC007676.
HUCOF58	1378	909344	1 - 2923	15 - 2937		AL522376, AL519706, AL531714, AL526798, AL526831, AL525736, AL525802, AL525315, AL525691, AL519707, AL522375, AL525839, BE792809, BE796322, BE743896, BE796567, BE274399, BE796020, BE796664, BE535472, BE260643, BF684007, BF983562, BE543107, BF311070, BG258831, BF528120, BG030916, AV714392, BE889610, BE408007, BE277440, BE618415, BE867723, BG110983, BG181079, BF527074, BF027018, BE264666, BE299203, BE297450, BE264922, BE386448, BF035652, AW410472, BE382754, BE903062, BE407284, BE905907, BG113064, BE298268, BE545526, BG032444, BE266679, AW991399, BE772873, BE884015, AI309611, AW249227, AA442698, AI421417, BF310578, BE312050, BE259606, BF685976, BF970944, BE618656, BE314117, AW248427, AW958233, AI300569, BE564324, BE207989, BE387042, BE261799, AI884919, AW005650, BE061923, AW410704, AW960504, AW601219, BF848073, AI089642, BF342013, AA564704, AL040087, W60773, BE207992, AA903950, AI309614, AI085644, BF347393, AA258978, AI419210, AA009753, BF879231, AA216411, AI865848, BE718378, BF348285, AI683537, AW117839, AI206510, AA453117, AI620366, H58361, BF752057, BF752053, AI520851, AW373946, W42711, AW601221, H42973, AW016488, H08339, F22598, AA494395, AI005664, AI372774, AI565541, H58750, AA778118, AI828095, AI225112, AA576831, BF347545, AA971475, BF352808, AI339860, W42904, BF033582, AI096947, W60487, BF737949, AI243479, AW780312, AI961803, AA706303, AA975280, BF760874, AA449981, AI126822, BF796645, BE410972, BE718404, AW403064, BE890272, W57667, AI096594, AA917878, T16862, H24045, H94211, BF928741, BE831302, R08029, F11443, F09106, H42902, R08078, BE718388, BE718374, Z43495, BE718393, BE718373, BE831316, BE831321, BF846294, AI446598, Z39564, BE718398, AA608866, BE718392, BE831301, AI564884, BE718387, BE718386, H08338, AI245647, AA301909, AW403150, BE718381, BE718412, BE718462, BE718376, BE718450, BE831337, T69855, H80027, BE718396, BE718385, AA135410, BE718469, AI091920, BE718384, BE718433, BE718463, BE718416, BE718439, BE718440, BE831330, BE718406, BE718474, BE718473, BE718461, BE718391, AW247973, BE718428, BE718421, BE718468, AA889882, H24152, AI472790, BE718464, BE718414, BE170203, AW937176, AI567456, T34673, BE718434, AW603147, AW999057, AW768533, BF764766, BE301688, BE718372, BE706857, BE718435, H80028, AI698197, BE718427,

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HAPBL13	1379	909390	1 - 1961	15 - 1975	<p>AA151856, AL519674, AL524125, AL530114, AL518563, BGI19582, BE869185, BE734743, AL524124, BG248163, BE736220, BE782619, BF795936, BF033083, BE893350, BF435225, AL519673, BG026633, BF970046, BF692625, BF692541, BE885230, BE393898, BE312030, BE389940, BE892741, BG163906, BE313920, AI241474, AI813813, AI922418, AW631237, AA018345, AW151233, AI420163, BE905414, AW963076, AI922430, W56183, AI671156, AA482598, AW390145, AI018102, AA451942, BE242648, AI419907, AA417581, AA001019, AW473585, BE391031, AA576510, H08477, BF372172, H06603, BF928779, W56260, R69763, AI285366, H07140, R87304, AI357631, AA814595, H06633, AW243905, AI741613, AI762578, BF372164, H43938, AA026966, W22979, BF988194, BE868575, R87305, BF677308, R48432, AI990378, AI459770, H08759, AI949071, AI400794, AW797547, BE350276, T56903, AW750152, AA876261, AA614565, AI000311, AA018346, BF512980, AA450330, AW051437, AA612852, BE076134, AI360869, AI338519, AW613433, AW590872, AI356485, BF992680, AA514688, AA578364, AI696492, AI214800, H89800, AA768838, AI674961, T77366, AI247090, BF811395, AA344443, AV699752, BE833483, AW884714, BE856299, BG152437, AI569050, T56902, R69764, AI623626, BF748071, AA971138, AW367168, AI001995, H52166, AW968355, AA450329, BF003017, AI890057, AI432644, AI623302, AW972092, AI432653, AW081103, AW968356, AI239612, AW972093, AW968729, AA001020, AW858522, AW971740, R48323, R30662, AI432654, AW972091, AI432650, AI431307, AI431316, H89737, BE672759, AW972090, AI431238, AI432677, AW969229, AI432666, AA216315, AI431230, AI431328, AI045327, AW821860, AI431353, AI431312, AI432655, AI431310, AA347637, AW128900, AI431354, AI431323, AI134524, AW953095, AI431321, AI431315, BE833631, AI492519, BF088397, AI431347, BF448552, AI431246, AI432675, AI431243, BE672748, AI432661, AI431337, BE672732, AI042729, AI791349, BE672745, AI047611, AL042655, AI432647, BE672767.</p>

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HHEEN22	1380	909508	1 - 2035	15 - 2049	AL537803, AL533805, AL528779, BE900296, BF115932, BE892972, BF313987, AI361002, AI969720, AL522791, AL537804, BE390684, BF969374, AI805386, BF436604, BF851120, C06251, BF851220, AI304680, AI885442, AI869317, AI306681, AI634959, BG027366, AW962083, AL522792, AA653629, AI336898, AU147422, BF197759, AW192256, AW236693, AI870517, HI0595, BE005916, BF056134, R52073, R73296, AI798507, AL038838, AL038983, AA464725, AL037727, AL038532, AI142134, AI927008, AL038822, AL043814, AL043923, AL043845, AL040617, AL044186, AL041238, AL047012, AL041577, AL041459, AL044064, AL040294, AL041635, AL044037, AL047170, AL040463, AL040768, AL046850, AL045753, AL041752, AL045684, AL040625, AL047219, AL040052, AL043570, AL043848, AL041374, AL043627, AL041523, AL041730, AL044074, M78003, AL041602, AL043492, AL040839, AL043677, AL040472, AL043467, AL040510, AL042135, AL040621, AL043538, AL047064, AL040464, AL045671, AL046442, AL046994, AL041133, AL039316, AL041324, AA479858, AL046392, AL040322, AL046914, AL044258, AL044272, AL040119, AL037436, AL041096, AL040444, AL040148, AL045920, AL045817, AL049018, AL041098, AL047057, AL044187, AL040458, AL040576, AL528780, AL044199, AL041955, AL045990, AL041292, AL041358, AL041163, AL040332, AL041142, AL041346, AL041168, AL040529, AL044274, AL040745, AL046330, AL041197, AL040128, AL041159, AL040571, AL037435, AL047036, AL040342, AL042096, AL040553, AL041186, AL044162, AL040285, AL037335, AL039360, AL044165, AL040091, AL040090, AL041131, AL040414, AL041051,

AL079878, AL046327, AL037443, AL043496, AL040168, AL037343, AL039744,  
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AL045857, BF931792, AL040329, AW964785, AL040370, AL038761, AL039338,  
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AL044125, BF476421, AL047037, AA477492, AL037279, BE173779, AL043444,  
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AV761360, AV760852, AA464077, AL045328, AW970070, AV709580, AV764428,  
AV764028, AV742580, AV742695, AV764322, AV733915, AV726590, AV704626,  
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AL046097, AV726337, AV708520, AV730300, AV725582, AV727618, AV730416,  
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AR062871, A20702, A43189, A43188, A20700, A98420, A98423, A98432, A98436,  
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A85395, A85476, AR062872, AR062873, AX026824, AX026823, A25909, AX009487,  
A81878, A64973, AX001082, AJ244003, E14304, A58524, AR069374, A58523,  
AR069375, I44516, E16678, AR093385, AX006823, AR093392, I26930, I25027,  
AR069426, I26929, I26928, I26927, I44515, D78345, AR009151, X83865, AR072535,  
AX003207, Y16359, AJ244007, AJ276256, AR038762, E03627, AX028305, A60212,  
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A95051, A18053, AR095492, AX009712, AR069650, I08396, AJ244005, I84553, I84554,  
A18050, AX012337, I00682, AR007512, A11624, A11623, E00609, A11178, E01007,  
AX035980, I13349, A10361, I06859, I62368, A91965, AX032992, AX032993, I08395,  
A35537, A35536, AR043601, A02136, A04664, A02135, A04663, U94592, A11245,  
AX032758, AX035462, A92133, AR085082, AR085089, AR085091, AR085079,  
AR085083, A70040, I03331, E12615, A02710, AX018504, AR035193, A07700,  
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AX027813, AX030369, AX030368, AR027100, I49890, I44531, I28266, AX042377,  
AR083151, AX027812, AX027810, AR091518, AX027816, AX042375, AX027817,

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H2CBH75	1381	909587	1 - 2462	15 - 2476	AF107454, AL525109, BF968132, BG260993, AU125391, BF439992, BF667287, BF666559, BE787193, AW340566, BF980901, BF131428, AA282393, AI635585, BE857014, BF698925, AU145369, BF680887, BF130397, AW953405, AI564770, AA307511, AI094857, AI767771, BF132394, BF669953, BF576213, AI942231, AA037301, BF665081, BE218501, BF680672, T75075, AA400700, W46782, BE618487, AA400655, AW169922, AA307337, AW951664, N28440, AA485147, AA309597, AV722188, AI827798, AU118919, H23497, AW751560, BE972350, AU131474, AI261716, AW753043, AI023953, AA206751, AW438395, AW316878, AI587242, FI1062, BE874401, T82820, AW812111, W46783, T82305, F12724, BF374955, N59001, BF332782, Z45760, BF332556, R38518, AA331899, AA296346, AI471180, Z41409, BF879002, BE790376, AI625227, BF969516, F07384, AA485032, F06371, Z43207, AA282051, BE932794, F06352, R13009, AI880884, AI214731, BE618887, H24404, AV706147, AW964541, AV702035, AW966330, AW966389, AW964468, AV705869, AW949645, AI535660, AV707480, AW975618, BE890171, AI535686, AI557751, AV706028, AV706851, AV726812, AV724520, AV704548, CI4331, D80045, CI4407, AV727418, AW964532, AW973445, D59551, AW973541, AV720791, AV699550, D59859, AV720812, AW960465, AW949586, AW966333, AV718692, AA809122, AV720104, CI4344, AA305578, AW966053, AW959627, AV719783, AV720464, AW966041, AW966399, D59275, AV650003, AV718489, AW966059, AW965175, D59317, AW966400, AV720291, AV720150, D52291, AV719632, AV718487, N66429, AK026940, AC005534, AF190665, AK021727, AC007075, AC007097, AX047063, A62298, A82595, AX047064, A84916, AR016808, A62300, AR070327, AR018138, AR071754, AX033851, Z82022, AR087649, AB002449, AB028859, I79511, X64588, AJ132110, AR008278, AR008277, AR008281, AR060385, I14842, AX027925, AR054175, AF058696, AR077702, A63887, and AR060382.
HTLHU05	1382	909665	1 - 1395	15 - 1409	AI827749, BE501922, AI025487, AW662022, AI580407, AI819667, AI223109, AI150036, BF732681, AW087713, AI024234, T18864, AI479322, AA883975, AW341589, AA860213, AI831802, AA913074, AA608857, AI050685, AA860223, AA948538, AI075930, BG037042, BF972639, AW975618, AW966330, AV724520, AW973541,

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HDPPG85	1383	909673	1 - 1750	15 - 1764	BG024946, BF894277, BF925279, BF851282, BF379136, BE244132, AW402742, AA380395, AA354504, AL047399, AI564067, BF795460, BE704219, AL041067, AL041068, and D30758.
HWAMB81	1384	909678	1 - 1167	15 - 1181	AW969424, BE150442, AW952925, AW380440, BF875200, AW299858, BE245899, AW391525, H78659, H78769, H53674, AA628987, AA447173, AW204470, AA343468, BF694134, AA480342, BE150443, BF758197, AK000528, and AF155118.
HSYDI55	1385	909692	1 - 1601	15 - 1615	AL531689, BF975130, BG166578, AV713795, BG256465, AU138732, AU136917, AW188089, BE397937, BE789377, BG169850, BF115624, AT762085, BG178271, BF573578, BF432031, AW273437, BE220494, BF591012, BG171303, BF056174, AW511531, BF195935, AI472328, AW954061, BE500953, AI858271, BE046481, AI440050, BE540278, AI476281, AW304171, AI458243, BE503455, AW956739, AI445711, BE972735, AW136662, BG171279, BF857500, AA164517, AI699703, AA708922, AI268056, I98958, BE813909, AI265884, BE139089, BE503272, AI796023, BF091626, AU156932, TS7763, BF222795, AU157726, BF447802, BE220862, AI610309, AI927962, BF205289, AI694704, AW339786, AA971085, AI421319, AA603698, R93782, BG166246, AA465255, N49590, N67740, AI914058, AI190112, AI274909, D20733, BE275478, AW407523, AV682063, AW139929, BE813963, AI217103, AA857052, BE936270, AA827085, AW379725, N49070, AI190529, AA383123, W86964, BE551639, BF439061, H60699, AW615368, BF091557, AW002388, AI341196, AW594520, AI040284, R51650, AA661899, N31773, AA769783, AA812984, AA383124, BF205443, F37231, F24191, BE242063, BE241787, N56201, T60662, T64969, AW664816, AI858737, AA465147, AI420514, BF748531, AI364456, BE207700, AI308213, AI364564, AA984765, AI769568, AW612305, AW996791, BF109474, BE548258, AI638355, AW301000, BF222718, AW610498, AA535238, BE075770, N50200, AI784377, AI569188, T25055, AW996932, AA279845, AW991326, AI699592, BF904839, AA812498, BE814080, AK001954, AF151819, AF257318, AF263364, AB007960, AF263293, AL049597, and AI636746.
HHFJU87	1386	909720	1 - 4093	15 - 4107	AW888219, AU120950, AI529421, AL529422, AL519396, AU132805, AU134243, AU119842, AI056268, BG029323, BG120802, BF980051, BG119518, BG107577, BE867574, BE896064, BE293139, AL519395, AA402681, BG037202, AW769171, AI343372, BF219098, AW961328, BF344227, AW965036, BG179730, AU154263, AI830593, AW997624, BG250141, AI769934, BE296935, BF304496, BF687519, AI828644, AI126507, AA683548, AI973068, AI139495, AI027361, BF062430.

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HDHIB39	1387	909774	1 - 1446	15 - 1460	AL046643, BF062290, AI046644, and AA383293.
HTXSR92	1388	909802	1 - 1347	15 - 1361	BF880998, BF899581, AA320236, AK024488, and AK025091.
HWEAD65	1389	909868	1 - 883	15 - 897	AL519798, BF967338, AI079221, BG120626, AA304143, AW450083, AA781406, BE830104, BE830107, and AC016399.
HUUAR12	1390	909906	1 - 703	15 - 717	AW387096, W32650, AW178917, BF374329, AW387086, AW387109, AW062872, AB018336, and AL122052.
HEMBT61	1391	909941	1 - 451	15 - 465	N86549, AU119707, AW369713, AB002301, and AC008920.
HNTCE17	1392	909957	1 - 853	15 - 867	BE731835, BE900535, AW505346, BE903680, BE895244, BG000781, AL079671, AL079678, BF992762, AW371782, BF753376, AL040960, AK027123, U02313, and AB018350.
HFFAV24	1393	910038	1 - 599	15 - 613	BF984540, AW316850, AA987544, AW956193, AW732633, AA847688, AI061632, BG115584, H29119, BF760396, BE698386, R55898, AI024861, Z17839, AW732945,



HEOPL36	1394	910057	1 - 2093	15 - 2107	T35639, BE539877, AW367237, BE708528, AW806695, T31022, BE172434, AA346958, AW629333, T30051, A1217229, F01057, AW367265, BF742147, H17043, BF799470, BF945478, AA298583, R75948, AA160430, BG166140, AA301187, BF762595, BF820293, BF927316, AF116648, AY007086, AL389984, AF128536, AL049758, AF139495, AF139493, AF139494, and AF139492.
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HFKJM30	1395	910061	1 - 1170	15 - 1184	AA075233, BE539371, AA306831, BF361796, AW893975, AW993209, N34160, A1750882, and Z21161.
HTEPE35	1396	910083	1 - 825	15 - 839	A1935040, AA861064, AA933697, AA707583, AA872105, AA398866, AA609626,

HIBEG14	1397	910301	1 - 1003	15 - 1017	AA620685, AA435866, AA812556, AA781805, AA993718, AF012362, A1217888, and AA824315. BF309769, BF569808, BE299199, BF307790, BE294022, BF307280, BE889392, BF204619, BF315984, BE875943, AW499957, BF569796, AW328048, AW957614, BF316139, AL046819, AA099341, AA446798, AW608269, BF229954, H17847, BG252791, BF809120, BE889170, H43800, W22008, AA034999, W23302, BF737282, BE169287, BF315702, AW293778, BF809986, BF745886, AW956176, H45902, AA351298, BG122527, BF727340, BE871070, Z43942, BE260511, BE825192, AW608295, BF309836, H91434, BE707279, BE742991, BF805060, AA373993, BF881708, BF805243, BE772341, BE728129, BF124933, A1376959, AA205761, BF855456, BF856294, BG105523, BF808170, BE746582, BF759250, BE931592, BE931589, BF997335, H45894, BF725034, AA314509, BF736820, BF805273, BF915876, BF914573, AA348786, BF374343, AW898502, BE185512, AK025330, AK024916, AF068755, D87435, AK025153, AL121928, and AF127523.
HIBCH43	1398	910448	1 - 2156	15 - 2170	AL538373, A1131052, AW961956, BF515998, BF681676, AA523426, A1889021, AA878208, N48374, AA633585, AW073599, AA937104, N38737, W02862, A1004340, N41485, AW005782, AW450150, N73459, AA496267, A1310433, BF955180, A1393818, A1357494, A1491761, AL538374, N29461, BE049328, AW517294, D54111, H00339, AW903429, AA810049, BF448763, AA410656, AA864514, AA255630, AA349755, AA338630, R15175, AL535774, R60777, T40978, D81723, H17893, AV749211, AA339554, R41626, BF961532, R50877, T61269, Z42650, R20169, BF947870, R44956, H00299, T05199, T61321, Z38812, H05253, T40055, H84304, T08208, T24545, R50757, A1459735, AV722174, T31283, AW401402, A1861965, R60267, T06066, A1657485, N83963, N87188, N83707, T08351, AB040905, AK000373, U39066, AR018815, AX009614, AF045432, AJ243486, U48697, U48696, AX009612, AF102850, AF011573, AF001863, AF061744, AR091393, X99058, X99056, X99052, Y16299, X99051, X99055, X99060, AX015225, X99057, and Y07542.
HELDY60	1399	910451	1 - 617	15 - 631	AV647669, AV647418, D81111, D80064, C14227, AW966013, C06015, T11417, C14407, AW959582, D80253, AW177440, AV718489, AW966075, AW966065, C14389, AW959136, AW966032, C14298, D80366, AW978634, AW966059, D51079, D80227, AW975618, AV719557, D59859, AV722801, AW978661, AW966053, AW959799, D57483, AW960553, AW753053, D80269, D80168, AW966043, D58246, A1557751, AW958993, AV718692, AW975613, AV699447, AW960473, D80188, D51423, AV699480, AW966029, AV700889, D59889, AW973334, AW966534, AW973474, D81030, AW959597, AW960465, AW965163, AW973307, AW966030, AW966531, D80166, D58101, AV720878, AW966022, D59503, F13647, AW178893, D59619, AW752082, D58283, D80210, D51799, AW960532, D80043, D80240, AV719822,

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				15 - 1644	AL528502, AL529630, BE615772, BF983242, BF981395, BE615323, AA425584, BG249631, BF376733, AA393897, BF376149, BF306303, AW957715, AA421197, BF763508, AA351794, AL365582, BF875897, BF875898, BF036884, AA130400, F06747, BE900781, T07026, AA351666, BF366501, AW176346, BE274021, BG033008,
HDPRX11	1400	910465	1 - 1630	15 - 1644	

HDPBN81	1401	910569	1 - 2853	15 - 2867	BF310904, AA068987, BF887110, BF125045, BE294287, BE297092, BF983414, BF841405, BF823445, AK024427, and AF174603. AU141855, BG254423, BF689928, AW976725, AU136431, AI801897, BF940288, BF732920, BF690154, BF433303, BF195711, AW517339, BE670695, AW467012, AW205776, BF436096, BE247412, BF058747, BF690051, BF689977, A1754077, A1126236, AA994465, N29128, AW303365, AI05201, AI373010, BF594605, A1633879, AA741232, BE466577, BF724464, W44731, BE243897, AI951557, AI268256, A1738529, AI870136, N28029, AI379201, AI761741, AI766228, AA281348, N35179, AA236416, AA768829, AI568382, AI218917, AW337445, AU157004, W38665, H20025, AI160887, BF835485, AU156719, W92895, AI911791, BE244852, AA461295, AW028731, AI433473, H20101, AA815110, BE244807, AI126953, AI351875, AI912253, AW339938, N23395, AA236417, BE222371, AA459710, AW404548, H51393, H49128, BF082381, AW168488, W92818, AI433222, N26729, AA995639, AW138449, N21167, AW207011, BE669624, N34617, BE247011, H50404, AA304033, BF445330, AI692390, AA996188, H99578, AI912577, N21284, H50364, BF872901, AA281349, AI917007, N24224, BE041496, AA357145, AW298198, H51392, AA931978, AA992494, AI005428, BE551312, H21490, H40615, H49060, H27879, AA814328, T12251, AA994344, BE858052, AI205488, T71250, AI917712, H99192, N24475, AW751629, T90814, AA121981, AA121980, T12252, AW751630, AI526078, AV707705, AV705143, AW958106, AW958109, AV705282, Z32887, AW955629, AV706136, AX023769, AF129112, AX019706, AF103906, A94121, AK001896, AX019710, AX019708, AB021665, AF129113, AB029330, and AB022332. AL526578, AL517776, BE410566, BE387490, BE378857, AL528093, BF724735, BF984478, BE387459, BE542847, BF305064, BF310629, BE262161, BE391955, BE261272, BE261001, BE302471, BE881458, BE798741, BG178982, BF970835, BE363381, BF851555, AA805310, BF975927, BE018938, BE904955, AA381563, AW883712, AA382642, N42584, AA323574, N31176, BG015922, BG015845, BE273985, AC004126, and AB013721.
HSLJF08	1402	910686	1 - 799	15 - 813	AA433141, Z43057, and AF169693. BF528573, BF966889, BF347124, BF347254, BF527132, BF345915, AI912956, AW005421, AI479888, AI968200, AW051673, BF059512, BF347881, BG056489, AW195692, AA191496, BF508416, AW241557, BE047005, BE502060, BF507946, BE219510, BF437865, AI636555, AI631197, AW268478, AW952293, AV729301, AW297035, AW007504, BF057679, AI817722, AI394250, AW594614, BE765755, AI277737, AI339955, AI394531, AW023543, AA081920, BF934850, AI094744, N47888, BF332929, BF948205, D60233, AW952296, AA453034, AV706502, AA190320, H39689, AI640463, N51145, D60232, BE694035, R36774, BF366736, BE328102, BF837280.
HAGAE60	1403	910706	1 - 538	15 - 552	
HTJN149	1404	910714	1 - 2408	15 - 2422	

						AI693121, D61426, R24709, AI560458, BE467598, T80514, AW770728, AA321164, AI689851, AI468746, AI161192, R12231, AI203048, AW020660, AA326701, R39949, H28681, R45443, AA321911, H14710, AI459741, AW022696, BE762694, AA370485, EI5003, AI137311, AC007748, AC008273, and AC007559.
HUFBA64	1405	910722	1 - 1502	15 - 1516		AV699352, AI640262, AI691066, BE465442, AI215163, AI762251, AW449055, AI867211, AI640454, AI222536, AI222484, AW937129, AA911069, AA910552, AV689858, AV696520, AA994834, AV695257, AI948684, AI762130, AW873454, AW821862, AI942346, AW860126, N64302, AW821865, N58101, BE071153, AW881517, AW862343, BF741462, BE825240, AK000384, AF258676, AF301909, AF276242, AK000226, AK025012, AF258674, AF277159, and AF258675.
HMTAX31	1406	910866	1 - 1173	15 - 1187		BE868556, AV714942, BE910217, AV764304, AW188661, AW963729, AA406582, AA847680, AW167272, AW151243, N25994, AA621715, AI015551, AW513605, AI829183, AI290229, AA410486, AA815315, AI040507, AI818989, AI040765, AI636434, AW167634, AI085194, AI342313, AA406387, AA827049, AA812382, AA769207, AI278749, R60575, AA983613, AV711945, N36626, AV764531, AI283824, AI128463, AA374753, AA911296, AA484968, AA463739, T30540, AI126964, AA411633, R70442, AA256096, AI655254, AA410304, R37051, AA872115, AA528102, AW385663, AA625487, AA985260, AA411672, AA411671, AA988584, AA284022, H42417, D20266, BE796998, AI916438, AA345748, R69455, H42445, BF432193, AI753452, BF872302, AL079839, BE185223, H82446, AA285169, BE890604, BE774954, AF165519, and AK000383.
HSSAL39	1407	910902	1 - 453	15 - 467		AA377965.
HE8QR01	1408	911011	1 - 1186	15 - 1200		AI971394, AI871742, AA434160, AI139742, AI634480, BF448386, BE670299, AA984007, AI267902, BE218554, AI634496, AI924610, AI632967, AW137060, AI700714, AI339943, AI032179, BE217731, H23429, AA934393, AA033815, AW366943, AX006320, AF188608, M89797, AL031281, AX006322, U25141, and U51267.
HLQK77	1409	911038	1 - 2870	15 - 2884		AW385785, AW580852, AA430300, AA541688, AA776700, AA679037, AW956718, AW664335, AA573270, AA126614, AL045796, BF435548, AI268236, AA682186, AI963606, AI926591, AW192904, AI924827, AI922590, BF516156, AI032288, AI375804, AA705172, AW081541, AW602610, AA694514, AI130883, AI800450, AA931725, N25288, AI270687, AI366906, AW058362, AI683319, AA436891, BE049444, R59176, AI597744, AI446542, BF928886, W69578, AW453004, AI911821, AI095665, AA687634, AI130013, W69579, R59232, AA722782, AI587015, AI191864, AA398533, AA676733, AI476374, AA115447, AA554327, AA759328, BF743669, AW875443, AW242281, AI139766, AA042956, AA886732, AA664356, AA358590, AA135916, AI565897, AW304844, AA916086, AA618576, R66162, H71919, AA363371, AA430199, AI370031, BF445642, Z44808, AA320329, AI934183, AA393105, AI004140, AA135927, AA042816,

AW452852, AA135926, H44791, AA813424, A1865731, T35731, R42647, R27785, T32691, A1857286, AW008428, BE857998, A1631988, AA115446, AA678468, AW075384, A1569918, H44790, A1918635, BF092378, AA601518, AA603858, BF092542, H42641, A1745618, A145766, BF885342, R27874, A1939990, BE926745, AA677131, AW364938, A1569374, AW836479, AW955686, AV726156, AW029062, AV703593, AW959998, BF885678, AW952182, AV708834, AV705159, AV684604, AV695545, AV704234, AV693523, AV707753, AV703362, AV655280, AV703495, AV727799, AV702026, AV725134, AV728670, AV702147, AV690007, AV702117, AV726738, AV651955, AV652001, AV704553, AV656478, AV709314, AV701067, AV691080, AV701707, AV656903, AV728733, AV961253, AV686060, AV709660, AV706721, AV729220, AV687035, AV696866, AV656283, AV708025, AV708980, AV692691, AV708992, AV727029, C01947, AV654896, AV652617, AV645906, AV709869, AV683272, AV686346, AV698043, AV727819, AV728806, AW945168, AV660608, AV725617, AV703372, AV701983, AV708004, AV652027, AV728270, AV727787, AV728997, AV698609, AV727003, AV708704, AV728471, AV706677, AV727526, AV703472, AV661704, AV697196, AV726816, AV696931, AV699089, AV692345, AV659322, AV654035, AV708893, AV708381, AV660728, AV656256, AV698429, AV725920, AV692972, AV729378, AV703168, AV708438, AV705384, AV703169, AV728518, AV652156, AV708723, AV652443, AV727980, AW960720, AW954384, AV709604, AV707933, AV701914, AV704269, AV652167, AV702516, AV659389, AV726103, AV701498, AV725826, AV702021, AW959800, AV705280, AV659294, AV727238, AV704637, AW950247, AV698545, AW954031, AV654908, AV702345, AV724902, AL391319, A1249901, AL109940, AL442124, S68736, AL050277, AK025967, AF118094, AF232009, AK024992, I48978, AL133072, AR011880, AF254119, AF130066, AK026762, AL122110, AF130082, AL137550, Z97214, AF182215, AF119899, AK025435, I89947, AL122093, AF218031, AX019230, AF126247, AL133640, A91160, AF146568, AK026959, AL133080, AX019229, AB034701, A93016, AL049382, AR029490, A08916, A08913, AL389935, I48979, AF100781, AL162083, AF130105, AL162062, Y10655, AF113694, AK026593, AF177401, AL137479, AK025209, AF207750, AK024588, X56039, AK026434, AR034821, AL050393, S61953, X82434, AK024538, Y11254, AF079763, AK025092, AF159615, AL050149, AL096744, A08910, A08909, A77033, A77035, AF119865, Z82022, AB048954, AL137294, AL117460, AL359615, U35846, AF116682, AL389982, AK024524, AF113019, AF116688, AF114170, AK027096, AL050024, AF177336, AL137459, AK000323, AL080126, AF130110, A65341, I03321, AK025708, AK000432, AF056191, A1005690, AF116631, AF090934, Y11587, I33392, AK026744, AL133075, I68732, AK026649, X63410, I89931, X79812, AL389978, M27260, AB052200, AK025524, AK000486, I00734, AR087170,				
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					AK027146, E00617, E00717, E00778, AL353940, E01614, E13364, A76335, AB007812, AX006092, AK026592, AL117435, A03736, AF057300, AF057299, X72889, AL359941, AK025407, AK025632, AF116602, AK026506, AF138861, AF139986, A57389, AL122049, AL359622, A07588, AF067728, AX042059, AF091084, AB047941, AF111851, AF116654, AF183393, AK027164, AL110221, AF090900, AL137548, AK026542, AL162004, A18777, AL049283, AL137560, X70685, AL353957, AL359596, AK025084, AL133557, AB047904, AX020124, AF090903, S78214, D83032, AF017437, Y16645, AF119875, AK000137, AK000083, AF090886, AK026927, I66342, AF260566, AF208850, AK024546, AF104032, AR068751, U88966, AR038854, AK026534, AF065135, AF087943, AL359583, AF116609, AL110197, AF116646, AL359601, AL133016, I09499, AL133113, AX026824, AX026823, A58524, A58523, AK024594, AF116691, AK027121, AL122050, AL049430, AK026642, AF113699, AL137271, E02349, I92592, AF026124, A08912, X65873, AL122121, AL389939, AJ012755, AL137463, X81464, AF028823, AF130055, A08908, AL390154, AF069506, AK026741, AL122100, AF242189, AL137533, AF079765, AL137521, AF008439, AF130059, AL162002, AL117457, AK000618, AB049849, AL133558, AB047887, AK026583, AB047623, AK026045, AB052191, AF217987, AF017152, M96857, AF130099, AF130075, AL157482, U80742, and AF090901.
HTXDX21	1410	911129	1 - 1280	15 - 1294	AL532995, AL35124, AL330055, AL519514, AL537312, AL528319, AL533352, AL529134, BF568175, BE741905, BG034104, BE547352, BE274622, BE731333, BF797010, BF306620, BF313124, BE275949, BE782406, BF338397, BE892479, BF203819, BF316551, BF310719, BF307040, BE384333, BE792462, BE383396, BE903632, BF689654, BE907819, BE736356, BE902781, AL528318, BE295219, AW385210, BE270419, AW952767, BG178860, BE311434, BF339641, BE298827, AW580494, BE796299, AL537859, AA203288, BF970396, AW248202, BE789240, AV658200, AW381812, BE152139, AW381820, BE152125, BF839907, BF876381, BF870245, AW381788, AW606103, BF872594, BE879361, H08032, R59408, AA251711, AL519513, AW391962, H38466, AW392072, AW675189, BE812161, AL529133, T08885, BF820870, Z45125, AW607111, BF929671, AA284122, R55922, R71422, AA132573, AA338727, BE394425, T19067, R19873, AA380273, AA306741, AW606114, H20224, BF956569, T32135, BF690553, BF725598, H14335, BE089898, BE936323, R71855, AA349258, AV750136, AA292979, BE838786, AA453179, BF897605, AW392152, R61099, T30961, BE792196, R48687, AA017424, AA339088, BF921563, D60752, AL047640, BF839916, R81429, AA434198, F07759, BF568898, AA043907, BF090429, H21242, H20698, H19959, N45020, AA078592, H46841, H85906, AW581682, H18360, AA017593, A1907987, AW247172, AA131344, D79023, AW888925, AW605244, AA477846, AA302385, BF351770, D52938, AV705566, AV706886, AV707687,

HMSHP51	1411	911153	1 - 1486	15 - 1500	BE621920, AA404213, AW391963, W39054, AW803820, D56251, W60672, AA308717, W60671, BF955063, BE350704, AA321261, AA069353, AA523404, W93904, AA843927, AA410846, AA984067, AA477522, BF847878, BF925418, AK026590, AF226732, and AC005067. BE903295, BG254805, BF794000, BF968496, BE272169, BG260638, AL120746, AL522917, BE543592, BE297251, BF529609, BE720216, BE720217, BF341980, BE244419, AL120747, BE245182, AW117671, AW300899, BE2444953, BE243858, BF895795, AL652660, BF929240, AW629889, BE246315, AA569672, AA569649, AA244194, BE221131, BE242172, R35109, AA324440, AA339557, AW613411, AW796843, AL203708, AW167744, AA436513, AA778267, BE246596, W79935, AI056797, AW572079, BF833240, AW057743, AI582819, AA677278, AA131340, BE242875, N78637, AI096486, AI609750, AW074046, AI208439, BE246782, W78110, AA716407, AI084144, W27763, BE244169, AA490824, AI753217, BE044814, AA334708, F24526, AI423068, AI139883, AA723727, AI886757, AA626327, AA251510, AI032915, R13997, AA642228, AI869581, AA740620, AW079414, AI004337, BF928163, AI656957, AI864899, AI682403, C00729, AA431957, BE242652, BF588823, F25694, AW732243, AA447589, AA468903, AI129460, BE243424, BF592584, AA719083, BF591758, T35337, T03781, BF342042, AI038540, BF851699, BF197941, R49497, BE242812, AA448088, AW139526, BF913014, BE246926, AA244268, BG149257, BF913018, AW969318, AA251639, AA002030, AA719165, BG230523, AW798250, AW893238, AA399600, and AF151845. AI803011, W44759, AA046886, BE674240, AI831233, AI302073, AW340759, AW236130, AI093394, AI935787, BE504265, BE504248, AW589954, AA150960, AW466913, AU146133, AI973084, BF196728, AA936951, BF446143, AI418623, AI435580, AW956422, AI264581, AI671022, AU146787, AW118839, AW665544, AI191597, BE645619, AI675809, AI242558, AW088730, AI800707, AA046979, AW296225, W73928, AA421100, N70304, AU150654, AA031539, AI564140, BF477497, AW265034, AW235148, BE535837, AA243847, AA084054, AI273243, AA226593, BE044190, AL526528, AW294446, AA421099, AA422134, AL521295, BF966843, AI433141, T50069, AI276055, AI097360, AW663063, F32723, AI814125, H28027, AI526867, AA652326, AI797634, AW589926, AI168830, AI650824, AA496314, AI971370, AI150958, AW614139, AW305179, AA233111, BE908703, R24074, AW236726, AI302409, AW612139, H77423, AI298574, D59998, AI077484, AI969750, W04250, AL520535, AW875716, AA226401, BE044224, BF476540, AA770396, AW601638, R31691, H78541, AA340545, AL532967, AA122285, H79028, AW614495, H54014, AA026139, D60652, D60653, R15482, H05830, AA689289, AA629153, AW384798, AV651502, AW589213, BF695131, H39508, R24127, AW192348.
HJPBB56	1412	778816	1 - 508	15 - 522	AI803011, W44759, AA046886, BE674240, AI831233, AI302073, AW340759, AW236130, AI093394, AI935787, BE504265, BE504248, AW589954, AA150960, AW466913, AU146133, AI973084, BF196728, AA936951, BF446143, AI418623, AI435580, AW956422, AI264581, AI671022, AU146787, AW118839, AW665544, AI191597, BE645619, AI675809, AI242558, AW088730, AI800707, AA046979, AW296225, W73928, AA421100, N70304, AU150654, AA031539, AI564140, BF477497, AW265034, AW235148, BE535837, AA243847, AA084054, AI273243, AA226593, BE044190, AL526528, AW294446, AA421099, AA422134, AL521295, BF966843, AI433141, T50069, AI276055, AI097360, AW663063, F32723, AI814125, H28027, AI526867, AA652326, AI797634, AW589926, AI168830, AI650824, AA496314, AI971370, AI150958, AW614139, AW305179, AA233111, BE908703, R24074, AW236726, AI302409, AW612139, H77423, AI298574, D59998, AI077484, AI969750, W04250, AL520535, AW875716, AA226401, BE044224, BF476540, AA770396, AW601638, R31691, H78541, AA340545, AL532967, AA122285, H79028, AW614495, H54014, AA026139, D60652, D60653, R15482, H05830, AA689289, AA629153, AW384798, AV651502, AW589213, BF695131, H39508, R24127, AW192348.



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HPWAS05	1413	843051	1 - 678	15 - 692		AW578499, AW578486, AW578466, AW962801, AW853617, AW853484, AA355417, H50788, AW604417, AW578516, BE769873, BF742693, BF944347, BF085020, BF376802, BE938438, AW510783, AW404210, AU148184, AA676210, AW361374, AL117348, AB018335, AK022502, and AK022465.
HUSIC81	1414	886711	1 - 1056	15 - 1070		BG252894, BG252656, BE905485, BG114831, BG249923, BF986308, AL048954, BF105260, BF382321, BE872774, BE541890, BF697715, BF984881, AA457625, BF815719, BF755168, AW860753, AW993684, AV708152, BE867752, AA557778, BF802746, BF664978, BE938703, AA044378, Z24930, BF887305, BF084350, BF037687, BE933732, AV696527, AA296931, Z32781, R78864, R37535, BF815237, AV695738, AW993023, AW974216, N31845, BE696398, BE620095, T31498, AA579908, AW974217, BF799275, AW366456, AA437015, BF815345, AV748930, BF132467, BF802748, AW366514, AW860733, AW860769, BF733961, BE932064, BE086739, BF210190, T36185, BF029928, BE932056, AV713753, AW958924, BE768063, AW606977, AW993306, BF986296, AW364905, BE719765, BE932712, BF741954, BE932705, AW407667, H12700, H03274, BG179582, BE173827, BE002433, AF269150, A91337, AF116347, AK000756, AF160213, AF269151, A78983, and A78984.
HUCPE29	1415	897919	1 - 1205	15 - 1219		BF109175, and AI932636.

TABLE 4

Code	Description	Tissue	Organ	Cell Line	Disease	Vector
AR022	a_Heart	a_Heart				
AR023	a_Liver	a_Liver				
AR024	a_mammary gland	a_mammary gland				
AR025	a_Prostate	a_Prostate				
AR026	a_small intestine	a_small intestine				
AR027	a_Stomach	a_Stomach				
AR028	Blood B cells	Blood B cells				
AR029	Blood B cells activated	Blood B cells activated				
AR030	Blood B cells resting	Blood B cells resting				
AR031	Blood T cells activated	Blood T cells activated				
AR032	Blood T cells resting	Blood T cells resting				
AR033	brain	brain				
AR034	breast	breast				
AR035	breast cancer	breast cancer				
AR036	Cell Line CAOV3	Cell Line CAOV3				
AR037	cell line PA-1	cell line PA-1				
AR038	cell line transformed	cell line transformed				
AR039	colon	colon				
AR040	colon (9808co65R)	colon (9808co65R)				
AR041	colon (9809co15)	colon (9809co15)				
AR042	colon cancer	colon cancer				
AR043	colon cancer (9808co64R)	colon cancer (9808co64R)				
AR044	colon cancer 9809co14	colon cancer 9809co14				
AR045	corn clone 5	corn clone 5				
AR046	corn clone 6	corn clone 6				
AR047	corn clone2	corn clone2				
AR048	corn clone3	corn clone3				
AR049	Corn Clone4	Corn Clone4				
AR050	Donor II B Cells 24hrs	Donor II B Cells 24hrs				
AR051	Donor II B Cells 72hrs	Donor II B Cells 72hrs				
AR052	Donor II B-Cells 24 hrs.	Donor II B-Cells 24 hrs.				
AR053	Donor II B-Cells 72hrs	Donor II B-Cells 72hrs				
AR054	Donor II Resting B Cells	Donor II Resting B Cells				
AR055	Heart	Heart				
AR056	Human Lung (clontech)	Human Lung (clontech)				
AR057	Human Mammary (clontech)	Human Mammary (clontech)				
AR058	Human Thymus (clontech)	Human Thymus (clontech)				
AR059	Jurkat (unstimulated)	Jurkat (unstimulated)				
AR060	Kidney	Kidney				
AR061	Liver	Liver				
AR062	Liver (Clontech)	Liver (Clontech)				
AR063	Lymphocytes chronic lymphocytic leukaemia	Lymphocytes chronic lymphocytic leukaemia				

AR064	Lymphocytes diffuse large B cell lymphoma	Lymphocytes diffuse large B cell lymphoma				
AR065	Lymphocytes follicular lymphoma	Lymphocytes follicular lymphoma				
AR066	normal breast	normal breast				
AR067	Normal Ovarian (4004901)	Normal Ovarian (4004901)				
AR068	Normal Ovary 9508G045	Normal Ovary 9508G045				
AR069	Normal Ovary 9701G208	Normal Ovary 9701G208				
AR070	Normal Ovary 9806G005	Normal Ovary 9806G005				
AR071	Ovarian Cancer	Ovarian Cancer				
AR072	Ovarian Cancer (9702G001)	Ovarian Cancer (9702G001)				
AR073	Ovarian Cancer (9707G029)	Ovarian Cancer (9707G029)				
AR074	Ovarian Cancer (9804G011)	Ovarian Cancer (9804G011)				
AR075	Ovarian Cancer (9806G019)	Ovarian Cancer (9806G019)				
AR076	Ovarian Cancer (9807G017)	Ovarian Cancer (9807G017)				
AR077	Ovarian Cancer (9809G001)	Ovarian Cancer (9809G001)				
AR078	ovarian cancer 15799	ovarian cancer 15799				
AR079	Ovarian Cancer 17717AID	Ovarian Cancer 17717AID				
AR080	Ovarian Cancer 4004664B1	Ovarian Cancer 4004664B1				
AR081	Ovarian Cancer 4005315A1	Ovarian Cancer 4005315A1				
AR082	ovarian cancer 94127303	ovarian cancer 94127303				
AR083	Ovarian Cancer 96069304	Ovarian Cancer 96069304				
AR084	Ovarian Cancer 9707G029	Ovarian Cancer 9707G029				
AR085	Ovarian Cancer 9807G045	Ovarian Cancer 9807G045				
AR086	ovarian cancer 9809G001	ovarian cancer 9809G001				
AR087	Ovarian Cancer 9905C032RC	Ovarian Cancer 9905C032RC				
AR088	Ovarian cancer 9907 C00 3rd	Ovarian cancer 9907 C00 3rd				
AR089	Prostate	Prostate				
AR090	Prostate (clonotech)	Prostate (clonotech)				
AR091	prostate cancer	prostate cancer				
AR092	prostate cancer #15176	prostate cancer #15176				
AR093	prostate cancer #15509	prostate cancer #15509				
AR094	prostate cancer #15673	prostate cancer #15673				
AR095	Small Intestine (Clontech)	Small Intestine (Clontech)				
AR096	Spleen	Spleen				
AR097	Thymus T cells activated	Thymus T cells activated				

AR098	Thymus T cells resting	Thymus T cells resting				
AR099	Tonsil	Tonsil				
AR100	Tonsil germinal center centroblast	Tonsil germinal center centroblast				
AR101	Tonsil germinal center B cell	Tonsil germinal center B cell				
AR102	Tonsil lymph node	Tonsil lymph node				
AR103	Tonsil memory B cell	Tonsil memory B cell				
AR104	Whole Brain	Whole Brain				
AR105	Xenograft ES-2	Xenograft ES-2				
AR106	Xenograft SW626	Xenograft SW626				
H0002	Human Adult Heart	Human Adult Heart	Heart			Uni-ZAP XR
H0003	Human Adult Liver	Human Adult Liver	Liver			Uni-ZAP XR
H0004	Human Adult Spleen	Human Adult Spleen	Spleen			Uni-ZAP XR
H0006	Human Frontal Lobe of Brain					Uni-ZAP XR
H0007	Human Cerebellum	Human Cerebellum	Brain			Uni-ZAP XR
H0008	Whole 6 Week Old Embryo					Uni-ZAP XR
H0009	Human Fetal Brain					Uni-ZAP XR
H0011	Human Fetal Kidney	Human Fetal Kidney	Kidney			Uni-ZAP XR
H0012	Human Fetal Kidney	Human Fetal Kidney	Kidney			Uni-ZAP XR
H0013	Human 8 Week Whole Embryo	Human 8 Week Old Embryo	Embryo			Uni-ZAP XR
H0014	Human Gall Bladder	Human Gall Bladder	Gall Bladder			Uni-ZAP XR
H0015	Human Gall Bladder, fraction II	Human Gall Bladder	Gall Bladder			Uni-ZAP XR
H0016	Human Greater Omentum	Human Greater Omentum	peritoneum			Uni-ZAP XR
H0017	Human Greater Omentum	Human Greater Omentum	peritoneum			Uni-ZAP XR
H0018	Human Greater Omentum, fII remake	Human Greater Omentum	peritoneum			Uni-ZAP XR
H0020	Human Hippocampus	Human Hippocampus	Brain			Uni-ZAP XR
H0021	Human Infant Adrenal Gland	Human Infant Adrenal Gland	Adrenal gland			Uni-ZAP XR
H0022	Jurkat Cells	Jurkat T-Cell Line				Lambda ZAP II
H0023	Human Fetal Lung					Uni-ZAP XR
H0024	Human Fetal Lung III	Human Fetal Lung	Lung			Uni-ZAP XR
H0026	Namalwa Cells	Namalwa B-Cell Line, EBV immortalized				Lambda ZAP II
H0028	Human Old Ovary	Human Old Ovary	Ovary			pBluescript
H0029	Human Pancreas	Human Pancreas	Pancreas			Uni-ZAP XR
H0030	Human Placenta					Uni-ZAP XR
H0031	Human Placenta	Human Placenta	Placenta			Uni-ZAP XR
H0032	Human Prostate	Human Prostate	Prostate			Uni-ZAP XR
H0033	Human Pituitary	Human Pituitary				Uni-ZAP XR
H0036	Human Adult Small Intestine	Human Adult Small Intestine	Small Int.			Uni-ZAP XR
H0037	Human Adult Small Intestine	Human Adult Small Intestine	Small Int.			pBluescript
H0038	Human Testes	Human Testes	Testis			Uni-ZAP XR
H0039	Human Pancreas Tumor	Human Pancreas Tumor	Pancreas		disease	Uni-ZAP XR
H0040	Human Testes Tumor	Human Testes Tumor	Testis		disease	Uni-ZAP XR

H0041	Human Fetal Bone	Human Fetal Bone	Bone			Uni-ZAP XR
H0042	Human Adult Pulmonary	Human Adult Pulmonary	Lung			Uni-ZAP XR
H0044	Human Cornea	Human Cornea	eye			Uni-ZAP XR
H0045	Human Esophagus, Cancer	Human Esophagus, cancer	Esophagus		disease	Uni-ZAP XR
H0046	Human Endometrial Tumor	Human Endometrial Tumor	Uterus		disease	Uni-ZAP XR
H0047	Human Fetal Liver	Human Fetal Liver	Liver			Uni-ZAP XR
H0048	Human Pineal Gland	Human Pineal Gland				Uni-ZAP XR
H0049	Human Fetal Kidney	Human Fetal Kidney	Kidney			Uni-ZAP XR
H0050	Human Fetal Heart	Human Fetal Heart	Heart			Uni-ZAP XR
H0051	Human Hippocampus	Human Hippocampus	Brain			Uni-ZAP XR
H0052	Human Cerebellum	Human Cerebellum	Brain			Uni-ZAP XR
H0053	Human Adult Kidney	Human Adult Kidney	Kidney			Uni-ZAP XR
H0056	Human Umbilical Vein, Endo. remake	Human Umbilical Vein Endothelial Cells	Umbilical vein			Uni-ZAP XR
H0057	Human Fetal Spleen					Uni-ZAP XR
H0058	Human Thymus Tumor	Human Thymus Tumor	Thymus		disease	Lambda ZAP II
H0059	Human Uterine Cancer	Human Uterine Cancer	Uterus		disease	Lambda ZAP II
H0060	Human Macrophage	Human Macrophage	Blood	Cell Line		pBluescript
H0061	Human Macrophage	Human Macrophage	Blood	Cell Line		pBluescript
H0063	Human Thymus	Human Thymus	Thymus			Uni-ZAP XR
H0065	Human Esophagus, Normal	Human Esophagus, normal	Esophagus			Uni-ZAP XR
H0067	Human left hemisphere, adult	Human Left Hemisphere, Adult	Brain			Lambda ZAP II
H0068	Human Skin Tumor	Human Skin Tumor	Skin		disease	Uni-ZAP XR
H0069	Human Activated T-Cells	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0070	Human Pancreas	Human Pancreas	Pancreas			Uni-ZAP XR
H0071	Human Infant Adrenal Gland	Human Infant Adrenal Gland	Adrenal gland			Uni-ZAP XR
H0073	Human Leiomyeloid Carcinoma	Human Leiomyeloid Carcinoma	Muscle		disease	Uni-ZAP XR
H0074	Human Platelets	Human Platelets	Blood	Cell Line		Uni-ZAP XR
H0075	Human Activated T-Cells (II)	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0077	Human Thymus Tumor	Human Thymus Tumor	Thymus		disease	Lambda ZAP II
H0078	Human Lung Cancer	Human Lung Cancer	Lung		disease	Lambda ZAP II
H0079	Human Whole 7 Week Old Embryo (II)	Human Whole 7 Week Old Embryo	Embryo			Uni-ZAP XR
H0080	Human Whole 6 Week Old Embryo (II)	Human Whole Six Week Old Embryo	Embryo			Lambda ZAP II
H0081	Human Fetal Epithelium (Skin)	Human Fetal Skin	Skin			Uni-ZAP XR
H0082	Human Fetal Muscle	Human Fetal Muscle	Sk Muscle			Uni-ZAP XR
H0083	HUMAN JURKAT MEMBRANE BOUND POLYSOMES	Jurkat Cells				Uni-ZAP XR
H0084	Human Namalwa Membrane Bound Polysomes	Namalwa Cells				Uni-ZAP XR
H0085	Human Colon	Human Colon				Lambda ZAP II
H0086	Human epithelioid	Epithelioid	Sk Muscle		disease	Uni-ZAP XR

	sarcoma	Sarcoma, muscle				pBluescript
H0087	Human Thymus	Human Thymus				Uni-ZAP XR
H0090	Human T-Cell Lymphoma	T-Cell Lymphoma	T-Cell		disease	Uni-ZAP XR
H0092	Human Pancreas Tumor	Human Pancreas Tumor	Pancreas		disease	Uni-ZAP XR
H0093	Human Greater Omentum Tumor	Human Greater Omentum	peritoneum		disease	Uni-ZAP XR
H0095	Human Greater Omentum, RNA Remake	Human Greater Omentum	peritoneum			Uni-ZAP XR
H0096	Human Parotid Cancer	Human Parotid Cancer	Parotid		disease	Lambda ZAP II
H0097	Human Adult Heart, subtracted	Human Adult Heart	Heart			pBluescript
H0098	Human Adult Liver, subtracted	Human Adult Liver	Liver			Uni-ZAP XR
H0099	Human Lung Cancer, subtracted	Human Lung Cancer	Lung			pBluescript
H0100	Human Whole Six Week Old Embryo	Human Whole Six Week Old Embryo	Embryo			Uni-ZAP XR
H0101	Human 7 Weeks Old Embryo, subtracted	Human Whole 7 Week Old Embryo	Embryo			Lambda ZAP II
H0102	Human Whole 6 Week Old Embryo (II), subt	Human Whole Six Week Old Embryo	Embryo			pBluescript
H0103	Human Fetal Brain, subtracted	Human Fetal Brain	Brain			Uni-ZAP XR
H0105	Human Fetal Heart, subtracted	Human Fetal Heart	Heart			pBluescript
H0107	Human Infant Adrenal Gland, subtracted	Human Infant Adrenal Gland	Adrenal gland			pBluescript
H0108	Human Adult Lymph Node, subtracted	Human Adult Lymph Node	Lymph Node			Uni-ZAP XR
H0109	Human Macrophage, subtracted	Macrophage	Blood	Cell Line		pBluescript
H0110	Human Old Ovary, subtracted	Human Old Ovary	Ovary			pBluescript
H0111	Human Placenta, subtracted	Human Placenta	Placenta			pBluescript
H0112	Human Parathyroid Tumor, subtracted	Human Parathyroid Tumor	Parathyroid			pBluescript
H0116	Human Thymus Tumor, subtracted	Human Thymus Tumor	Thymus			pBluescript
H0118	Human Adult Kidney	Human Adult Kidney	Kidney			Uni-ZAP XR
H0119	Human Pediatric Kidney	Human Pediatric Kidney	Kidney			Uni-ZAP XR
H0120	Human Adult Spleen, subtracted	Human Adult Spleen	Spleen			Uni-ZAP XR
H0121	Human Cornea, subtracted	Human Cornea	eye			Uni-ZAP XR
H0122	Human Adult Skeletal Muscle	Human Skeletal Muscle	Sk Muscle			Uni-ZAP XR
H0123	Human Fetal Dura Mater	Human Fetal Dura Mater	Brain			Uni-ZAP XR
H0124	Human Rhabdomyosarcoma	Human Rhabdomyosarcoma	Sk Muscle		disease	Uni-ZAP XR
H0125	Cem cells cyclohexamide treated	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0128	Jurkat cells, thiouridine activated	Jurkat Cells				Uni-ZAP XR
H0130	LNCAP untreated	LNCAP Cell Line	Prostate	Cell Line		Uni-ZAP XR
H0131	LNCAP + 0.3nM R1881	LNCAP Cell Line	Prostate	Cell Line		Uni-ZAP XR
H0132	LNCAP + 30nM R1881	LNCAP Cell Line	Prostate	Cell Line		Uni-ZAP XR
H0134	Raji Cells, cyclohexamide	Cyclohexamide	Blood	Cell Line		Uni-ZAP XR

	treated	Treated Cem, Jurkat, Raji, and Supt				
H0135	Human Synovial Sarcoma	Human Synovial Sarcoma	Synovium			Uni-ZAP XR
H0136	Supt Cells, cyclohexamide treated	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0140	Activated T-Cells, 8 hrs.	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0141	Activated T-Cells, 12 hrs.	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0142	MCF7 Cell Line	MCF7 Cell line	Breast	Cell Line		Uni-ZAP XR
H0144	Nine Week Old Early Stage Human	9 Wk Old Early Stage Human	Embryo			Uni-ZAP XR
H0147	Human Adult Liver	Human Adult Liver	Liver			Uni-ZAP XR
H0149	7 Week Old Early Stage Human, subtracted	Human Whole 7 Week Old Embryo	Embryo			Uni-ZAP XR
H0150	Human Epididymus	Epididymis	Testis			Uni-ZAP XR
H0151	Early Stage Human Liver	Human Fetal Liver	Liver			Uni-ZAP XR
H0154	Human Fibrosarcoma	Human Skin Fibrosarcoma	Skin		disease	Uni-ZAP XR
H0156	Human Adrenal Gland Tumor	Human Adrenal Gland Tumor	Adrenal Gland		disease	Uni-ZAP XR
H0157	Activated T-Cells, 0 hrs, ligation 2	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0158	Activated T-Cells, 4 hrs., ligation 2	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0159	Activated T-Cells, 8 hrs., ligation 2	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0161	Activated T-Cells, 24 hrs., ligation 2	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0163	Human Synovium	Human Synovium	Synovium			Uni-ZAP XR
H0164	Human Trachea Tumor	Human Trachea Tumor	Trachea		disease	Uni-ZAP XR
H0165	Human Prostate Cancer, Stage B2	Human Prostate Cancer, stage B2	Prostate		disease	Uni-ZAP XR
H0166	Human Prostate Cancer, Stage B2 fraction	Human Prostate Cancer, stage B2	Prostate		disease	Uni-ZAP XR
H0167	Activated T-Cells, 24 hrs.	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0169	Human Prostate Cancer, Stage C fraction	Human Prostate Cancer, stage C	Prostate		disease	Uni-ZAP XR
H0170	12 Week Old Early Stage Human	Twelve Week Old Early Stage Human	Embryo			Uni-ZAP XR
H0171	12 Week Old Early Stage Human, II	Twelve Week Old Early Stage Human	Embryo			Uni-ZAP XR
H0172	Human Fetal Brain, random primed	Human Fetal Brain	Brain			Lambda ZAP II
H0173	Human Cardiomyopathy, RNA remake	Human Cardiomyopathy	Heart		disease	Uni-ZAP XR
H0176	CAMA1Ee Cell Line	CAMA1Ee Cell Line	Breast	Cell Line		Uni-ZAP XR
H0177	CAMA1Ee Cell Line	CAMA1Ee Cell Line	Breast	Cell Line		Uni-ZAP XR
H0178	Human Fetal Brain	Human Fetal Brain	Brain			Uni-ZAP XR
H0179	Human Neutrophil	Human Neutrophil	Blood	Cell Line		Uni-ZAP XR
H0180	Human Primary Breast Cancer	Human Primary Breast Cancer	Breast		disease	Uni-ZAP XR
H0181	Human Primary Breast Cancer	Human Primary Breast Cancer	Breast		disease	Uni-ZAP XR
H0182	Human Primary Breast Cancer	Human Primary Breast Cancer	Breast		disease	Uni-ZAP XR
H0183	Human Colon Cancer	Human Colon Cancer	Colon		disease	Uni-ZAP XR
H0184	Human Colon Cancer, metastasized to liver	Human Colon Cancer, metastasized	Liver		disease	Lambda ZAP II

		to liver				
H0185	Activated T-Cell labeled with 4-thioluri	T-Cells	Blood	Cell Line		Lambda ZAP II
H0187	Resting T-Cell	T-Cells	Blood	Cell Line		Lambda ZAP II
H0188	Human Normal Breast	Human Normal Breast	Breast			Uni-ZAP XR
H0189	Human Resting Macrophage	Human Macrophage/Monocytes	Blood	Cell Line		Uni-ZAP XR
H0190	Human Activated Macrophage (LPS)	Human Macrophage/Monocytes	Blood	Cell Line		Uni-ZAP XR
H0191	Human Activated Macrophage (LPS), thiour	Human Macrophage/Monocytes	Blood	Cell Line		Uni-ZAP XR
H0192	Cem Cells, cyclohexamide treated, subtra	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0194	Human Cerebellum, subtracted	Human Cerebellum	Brain			pBluescript
H0196	Human Cardiomyopathy, subtracted	Human Cardiomyopathy	Heart			Uni-ZAP XR
H0197	Human Fetal Liver, subtracted	Human Fetal Liver	Liver			Uni-ZAP XR
H0198	Human Fetal Liver, subtracted, pos. clon	Human Fetal Liver	Liver			Uni-ZAP XR
H0199	Human Fetal Liver, subtracted, neg clone	Human Fetal Liver	Liver			Uni-ZAP XR
H0200	Human Greater Omentum, fract II remake,	Human Greater Omentum	peritoneum			Uni-ZAP XR
H0201	Human Hippocampus, subtracted	Human Hippocampus	Brain			pBluescript
H0202	Jurkat Cells, cyclohexamide treated, subtraction	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0203	Jurkat Cells, cyclohexamide treated, dif	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		Uni-ZAP XR
H0204	Human Colon Cancer, subtracted	Human Colon Cancer	Colon			pBluescript
H0205	Human Colon Cancer, differential	Human Colon Cancer	Colon			pBluescript
H0207	LNCAP, differential expression	LNCAP Cell Line	Prostate	Cell Line		pBluescript
H0208	Early Stage Human Lung, subtracted	Human Fetal Lung	Lung			pBluescript
H0211	Human Prostate, differential expression	Human Prostate	Prostate			pBluescript
H0212	Human Prostate, subtracted	Human Prostate	Prostate			pBluescript
H0213	Human Pituitary, subtracted	Human Pituitary				Uni-ZAP XR
H0214	Raji cells, cyclohexamide treated, subtracted	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		pBluescript
H0215	Raji cells, cyclohexamide treated, differentially expressed	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		pBluescript
H0216	Supt cells, cyclohexamide treated, subtracted	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		pBluescript



H0217	Supt cells, cyclohexamide treated, differentially expressed	Cyclohexamide Treated Cem, Jurkat, Raji, and Supt	Blood	Cell Line		pBluescript
H0218	Activated T-Cells, 0hrs, subtracted	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0219	Activated T-Cells, 0hrs, differentially expressed	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0220	Activated T-Cells, 4 hrs, subtracted	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0221	Activated T-Cells, 4 hrs, differentially expressed	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0222	Activated T-Cells, 8 hrs, subtracted	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0223	Activated T-Cells, 8 hrs, differentially expressed	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0224	Activated T-Cells, 12 hrs, subtracted	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0225	Activated T-Cells, 12hrs, differentially expressed	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0228	C7MCF7 cell line, estrogen treated	C7MCF7 Cell Line, estrogen treated	Breast	Cell Line		Uni-ZAP XR
H0229	Early Stage Human Brain, random primed	Early Stage Human Brain	Brain			Lambda ZAP II
H0230	Human Cardiomyopathy, diff exp	Human Cardiomyopathy	Heart		disease	Uni-ZAP XR
H0231	Human Colon, subtraction	Human Colon				pBluescript
H0232	Human Colon, differential expression	Human Colon				pBluescript
H0234	human colon cancer, metastatic to liver, differentially expressed	Human Colon Cancer, metastatic to liver	Liver			pBluescript
H0235	Human colon cancer, metaticized to liver, subtraction	Human Colon Cancer, metasticized to liver	Liver			pBluescript
H0238	Human Myometrium Leiomyoma	Human Myometrium Leiomyoma	Uterus		disease	Uni-ZAP XR
H0239	Human Kidney Tumor	Human Kidney Tumor	Kidney		disease	Uni-ZAP XR
H0241	C7MCF7 cell line, estrogen treated, subtraction	C7MCF7 Cell Line, estrogen treated	Breast	Cell Line		Uni-ZAP XR
H0242	Human Fetal Heart, Differential (Fetal-Specific)	Human Fetal Heart	Heart			pBluescript
H0244	Human 8 Week Whole Embryo, subtracted	Human 8 Week Old Embryo	Embryo			Uni-ZAP XR
H0245	Human 8 Week Whole Embryo, differential	Human 8 Week Old Embryo	Embryo			Uni-ZAP XR
H0246	Human Fetal Liver-Enzyme subtraction	Human Fetal Liver	Liver			Uni-ZAP XR
H0247	Human Membrane Bound Polysomes- Enzyme Subtraction	Human Membrane Bound Polysomes	Blood	Cell Line		Uni-ZAP XR
H0249	HE7, subtracted by hybridization with E7 cDNA	Human Whole 7 Week Old Embryo	Embryo			Uni-ZAP XR
H0250	Human Activated Monocytes	Human Monocytes				Uni-ZAP XR
H0251	Human Chondrosarcoma	Human Chondrosarcoma	Cartilage		disease	Uni-ZAP XR
H0252	Human Osteosarcoma	Human Osteosarcoma	Bone		disease	Uni-ZAP XR

H0253	Human adult testis, large inserts	Human Adult Testis	Testis			Uni-ZAP XR
H0254	Breast Lymph node cDNA library	Breast Lymph Node	Lymph Node			Uni-ZAP XR
H0255	breast lymph node CDNA library	Breast Lymph Node	Lymph Node			Lambda ZAP II
H0256	HL-60, unstimulated	Human HL-60 Cells, unstimulated	Blood	Cell Line		Uni-ZAP XR
H0257	HL-60, PMA 4H	HL-60 Cells, PMA stimulated 4H	Blood	Cell Line		Uni-ZAP XR
H0261	H. cerebellum, Enzyme subtracted	Human Cerebellum	Brain			Uni-ZAP XR
H0263	human colon cancer	Human Colon Cancer	Colon		disease	Lambda ZAP II
H0264	human tonsils	Human Tonsil	Tonsil			Uni-ZAP XR
H0265	Activated T-Cell (12hs)/Thiouridine labelledEco	T-Cells	Blood	Cell Line		Uni-ZAP XR
H0266	Human Microvascular Endothelial Cells, fract. A	HMEC	Vein	Cell Line		Lambda ZAP II
H0267	Human Microvascular Endothelial Cells, fract. B	HMEC	Vein	Cell Line		Lambda ZAP II
H0268	Human Umbilical Vein Endothelial Cells, fract. A	HUVE Cells	Umbilical vein	Cell Line		Lambda ZAP II
H0269	Human Umbilical Vein Endothelial Cells, fract. B	HUVE Cells	Umbilical vein	Cell Line		Lambda ZAP II
H0270	HPAS (human pancreas, subtracted)	Human Pancreas	Pancreas			Uni-ZAP XR
H0271	Human Neutrophil, Activated	Human Neutrophil - Activated	Blood	Cell Line		Uni-ZAP XR
H0272	HUMAN TONSILS, FRACTION 2	Human Tonsil	Tonsil			Uni-ZAP XR
H0274	Human Adult Spleen, fractionII	Human Adult Spleen	Spleen			Uni-ZAP XR
H0275	Human Infant Adrenal Gland, Subtracted	Human Infant Adrenal Gland	Adrenal gland			pBluescript.
H0280	K562 + PMA (36 hrs)	K562 Cell line	cell line	Cell Line		ZAP Express
H0282	HBGB's differential consolidation	Human Primary Breast Cancer	Breast			Uni-ZAP XR
H0284	Human OB MG63 control fraction I	Human Osteoblastoma MG63 cell line	Bone	Cell Line		Uni-ZAP XR
H0286	Human OB MG63 treated (10 nM E2) fraction I	Human Osteoblastoma MG63 cell line	Bone	Cell Line		Uni-ZAP XR
H0288	Human OB HOS control fraction I	Human Osteoblastoma HOS cell line	Bone	Cell Line		Uni-ZAP XR
H0290	Human OB HOS treated (1 nM E2) fraction I	Human Osteoblastoma HOS cell line	Bone	Cell Line		Uni-ZAP XR
H0292	Human OB HOS treated (10 nM E2) fraction I	Human Osteoblastoma HOS cell line	Bone	Cell Line		Uni-ZAP XR
H0293	WI 38 cells					Uni-ZAP XR
H0294	Amniotic Cells - TNF induced	Amniotic Cells - TNF induced	Placenta	Cell Line		Uni-ZAP XR
H0295	Amniotic Cells - Primary Culture	Amniotic Cells - Primary Culture	Placenta	Cell Line		Uni-ZAP XR
H0298	HCBF's differential consolidation	CAMA1Ee Cell Line	Breast	Cell Line		Uni-ZAP XR
H0299	HCBA's differential consolidation	CAMA1Ee Cell Line	Breast	Cell Line		Uni-ZAP XR

H0300	CD34 positive cells (Cord Blood)	CD34 Positive Cells	Cord Blood			ZAP Express
H0305	CD34 positive cells (Cord Blood)	CD34 Positive Cells	Cord Blood			ZAP Express
H0306	CD34 depleted Buffy Coat (Cord Blood)	CD34 Depleted Buffy Coat (Cord Blood)	Cord Blood			ZAP Express
H0309	Human Chronic Synovitis	Synovium, Chronic Synovitis/ Osteoarthritis	Synovium		disease	Uni-ZAP XR
H0310	human caudate nucleus	Brain	Brain			Uni-ZAP XR
H0313	human pleural cancer	pleural cancer			disease	pBluescript
H0316	HUMAN STOMACH	Human Stomach	Stomach			Uni-ZAP XR
H0318	HUMAN B CELL LYMPHOMA	Human B Cell Lymphoma	Lymph Node		disease	Uni-ZAP XR
H0320	Human frontal cortex	Human Frontal Cortex	Brain			Uni-ZAP XR
H0321	HUMAN SCHWANOMA	Schwanoma	Nerve		disease	Uni-ZAP XR
H0327	human corpus colosum	Human Corpus Callosum	Brain			Uni-ZAP XR
H0328	human ovarian cancer	Ovarian Cancer	Ovary		disease	Uni-ZAP XR
H0329	Dermatofibrosarcoma Protuberance	Dermatofibrosarcoma Protuberans	Skin		disease	Uni-ZAP XR
H0330	HCBB's Subtractive (-mito genes)	CAMA1Ee Cell Line	Breast	Cell Line		Uni-ZAP XR
H0331	Hepatocellular Tumor	Hepatocellular Tumor	Liver		disease	Lambda ZAP II
H0333	Hemangiopericytoma	Hemangiopericytoma	Blood vessel		disease	Lambda ZAP II
H0334	Kidney cancer	Kidney Cancer	Kidney		disease	Uni-ZAP XR
H0339	Duodenum	Duodenum				Uni-ZAP XR
H0340	Corpus Callosum	Corpus Collosum-93052				Uni-ZAP XR
H0341	Bone Marrow Cell Line (RS4;11)	Bone Marrow Cell Line RS4;11	Bone Marrow	Cell Line		Uni-ZAP XR
H0343	stomach cancer (human)	Stomach Cancer - 5383A (human)			disease	Uni-ZAP XR
H0345	SKIN	Skin - 4000868H	Skin			Uni-ZAP XR
H0346	Brain-medulloblastoma	Brain (Medulloblastoma)-9405C006R	Brain		disease	Uni-ZAP XR
H0349	human adult liver cDNA library	Human Adult Liver	Liver			pCMVSPORT 1
H0350	Human Fetal Liver, mixed 10 & 14 week	Human Fetal Liver, mixed 10&14 Week	Liver			Uni-ZAP XR
H0351	Glioblastoma	Glioblastoma	Brain		disease	Uni-ZAP XR
H0352	wilm's tumor	Wilm's Tumor			disease	Uni-ZAP XR
H0354	Human Leukocytes	Human Leukocytes	Blood	Cell Line		pCMVSPORT 1
H0355	Human Liver	Human Liver, normal Adult				pCMVSPORT 1
H0356	Human Kidney	Human Kidney	Kidney			pCMVSPORT 1
H0357	H. Normalized Fetal Liver, II	Human Fetal Liver	Liver			Uni-ZAP XR
H0359	KMH2 cell line	KMH2				ZAP Express
H0361	Human rejected kidney	Human Rejected Kidney			disease	pBluescript
H0362	HeLa cell line	HELA CELL LINE				pSport1
H0364	Human Osteoclastoma, excised	Human Osteoclastoma			disease	pBluescript
H0365	Osteoclastoma-normalized B	Human Osteoclastoma			disease	Uni-ZAP XR

H0366	L428 cell line	L428				ZAP Express
H0369	H. Atrophic Endometrium	Atrophic Endometrium and myometrium				Uni-ZAP XR
H0370	H. Lymph node breast Cancer	Lymph node with Met. Breast Cancer			disease	Uni-ZAP XR
H0372	Human Testes	Human Testes	Testis			pCMVSPORT 1
H0373	Human Heart	Human Adult Heart	Heart			pCMVSPORT 1
H0374	Human Brain	Human Brain				pCMVSPORT 1
H0375	Human Lung	Human Lung				pCMVSPORT 1
H0376	Human Spleen	Human Adult Spleen	Spleen			pCMVSPORT 1
H0379	Human Tongue, frac 1	Human Tongue				pSPORT1
H0380	Human Tongue, frac 2	Human Tongue				pSPORT1
H0381	Bone Cancer	Bone Cancer			disease	Uni-ZAP XR
H0383	Human Prostate BPH, re-excision	Human Prostate BPH				Uni-ZAP XR
H0384	Brain, Kozak	Human Brain				pCMVSPORT 1
H0386	Leukocyte and Lung; 4 screens	Human Leukocytes	Blood	Cell Line		pCMVSPORT 1
H0388	Human Rejected Kidney, 704 re-excision	Human Rejected Kidney			disease	pBluescript
H0389	H. Brain, X-Chromosome hybridization	Human Brain				pCMVSPORT 1
H0390	Human Amygdala Depression, re-excision	Human Amygdala Depression			disease	pBluescript
H0391	H. Meningioma, M6	Human Meningioma	brain			pSPORT1
H0392	H. Meningioma, M1	Human Meningioma	brain			pSPORT1
H0393	Fetal Liver, subtraction II	Human Fetal Liver	Liver			pBluescript
H0394	A-14 cell line	Redd-Sternberg cell				ZAP Express
H0395	A1-CELL LINE	Redd-Sternberg cell				ZAP Express
H0396	L1 Cell line	Redd-Sternberg cell				ZAP Express
H0399	Human Kidney Cortex, re-rescue	Human Kidney Cortex				Lambda ZAP II
H0400	Human Striatum Depression, re-rescue	Human Brain, Striatum Depression	Brain			Lambda ZAP II
H0401	Human Pituitary, subtracted V	Human Pituitary				pBluescript
H0402	CD34 depleted Buffy Coat (Cord Blood), re-excision	CD34 Depleted Buffy Coat (Cord Blood)	Cord Blood			ZAP Express
H0403	H. Umbilical Vein Endothelial Cells, IL4 induced	HUVE Cells	Umbilical vein	Cell Line		Uni-ZAP XR
H0404	H. Umbilical Vein endothelial cells, uninduced	HUVE Cells	Umbilical vein	Cell Line		Uni-ZAP XR
H0405	Human Pituitary, subtracted VI	Human Pituitary				pBluescript
H0406	H Amygdala Depression, subtracted	Human Amygdala Depression				Uni-ZAP XR
H0408	Human kidney Cortex, subtracted	Human Kidney Cortex				pBluescript
H0409	H. Striatum Depression, subtracted	Human Brain, Striatum Depression	Brain			pBluescript
H0411	H Female Bladder, Adult	Human Female Adult Bladder	Bladder			pSPORT1
H0412	Human umbilical vein	HUVE Cells	Umbilical	Cell Line		pSPORT1

	endothelial cells, IL-4 induced		vein			
H0413	Human Umbilical Vein Endothelial Cells, uninduced	HUVE Cells	Umbilical vein	Cell Line		pSport1
H0414	Ovarian Tumor I, OV5232	Ovarian Tumor, OV5232	Ovary		disease	pSport1
H0415	H. Ovarian Tumor, II, OV5232	Ovarian Tumor, OV5232	Ovary		disease	pCMVSPORT 2.0
H0416	Human Neutrophils, Activated, re-excision	Human Neutrophil - Activated	Blood	Cell Line		pBluescript
H0417	Human Pituitary, subtracted VIII	Human Pituitary				pBluescript
H0418	Human Pituitary, subtracted VII	Human Pituitary				pBluescript
H0419	Bone Cancer, re-excision	Bone Cancer				Uni-ZAP XR
H0421	Human Bone Marrow, re-excision	Bone Marrow				pBluescript
H0422	T-Cell PHA 16 hrs	T-Cells	Blood	Cell Line		pSport1
H0423	T-Cell PHA 24 hrs	T-Cells	Blood	Cell Line		pSport1
H0424	Human Pituitary, sub IX	Human Pituitary				pBluescript
H0427	Human Adipose	Human Adipose, left hiplipoma				pSport1
H0428	Human Ovary	Human Ovary Tumor	Ovary			pSport1
H0429	K562 + PMA (36 hrs), re-excision	K562 Cell line	cell line	Cell Line		ZAP Express
H0431	H. Kidney Medulla, re-excision	Kidney medulla	Kidney			pBluescript
H0432	H. Kidney Pyramid	Kidney pyramids	Kidney			pBluescript
H0433	Human Umbilical Vein Endothelial cells, frac B, re-excision	HUVE Cells	Umbilical vein	Cell Line		pBluescript
H0434	Human Brain, striatum, re-excision	Human Brain, Striatum				pBluescript
H0435	Ovarian Tumor 10-3-95	Ovarian Tumor, OV350721	Ovary			pCMVSPORT 2.0
H0436	Resting T-Cell Library, II	T-Cells	Blood	Cell Line		pSport1
H0437	H Umbilical Vein Endothelial Cells, frac A, re-excision	HUVE Cells	Umbilical vein	Cell Line		Lambda ZAP II
H0438	H. Whole Brain #2, re-excision	Human Whole Brain #2				ZAP Express
H0439	Human Eosinophils	Eosinophils				pBluescript
H0441	H. Kidney Cortex, subtracted	Kidney cortex	Kidney			pBluescript
H0442	H. Striatum Depression, sub II	Human Brain, Striatum Depression	Brain			pBluescript
H0443	H. Adipose, subtracted	Human Adipose, left hiplipoma				pSport1
H0444	Spleen metastatic melanoma	Spleen, Metastatic malignant melanoma	Spleen		disease	pSport1
H0445	Spleen, Chronic lymphocytic leukemia	Human Spleen, CLL	Spleen		disease	pSport1
H0449	CD34+ cell, I	CD34 positive cells				pSport1
H0450	CD34+ cells, II	CD34 positive cells				pCMVSPORT 2.0
H0453	H. Kidney Pyramid, subtracted	Kidney pyramids	Kidney			pBluescript
H0455	H. Striatum Depression, sub II	Human Brain, Striatum Depression	Brain			pBluescript
H0456	H Kidney Cortex,	Human Kidney				pBluescript

	subtracted III	Cortex				
H0457	Human Eosinophils	Human Eosinophils				pSport1
H0458	CD34+ cell, I, frac II	CD34 positive cells				pSport1
H0459	CD34+cells, II, FRACTION 2	CD34 positive cells				pCMVSPORT 2.0
H0461	H. Kidney Medulla, subtracted	Kidney medulla	Kidney			pBluescript
H0462	H. Amygdala Depression, subtracted		Brain			pBluescript
H0477	Human Tonsil, Lib 3	Human Tonsil	Tonsil			pSport1
H0478	Salivary Gland, Lib 2	Human Salivary Gland	Salivary gland			pSport1
H0479	Salivary Gland, Lib 3	Human Salivary Gland	Salivary gland			pSport1
H0483	Breast Cancer cell line, MDA 36	Breast Cancer Cell line, MDA 36				pSport1
H0484	Breast Cancer Cell line, angiogenic	Breast Cancer Cell line, Angiogenic, 36T3				pSport1
H0485	Hodgkin's Lymphoma I	Hodgkin's Lymphoma I			disease	pCMVSPORT 2.0
H0486	Hodgkin's Lymphoma II	Hodgkin's Lymphoma II			disease	pCMVSPORT 2.0
H0487	Human Tonsils, lib I	Human Tonsils				pCMVSPORT 2.0
H0488	Human Tonsils, Lib 2	Human Tonsils				pCMVSPORT 2.0
H0489	Crohn's Disease	Ileum	Intestine		disease	pSport1
H0490	HL-60, untreated, subtracted	Human HL-60 Cells, unstimulated	Blood	Cell Line		Uni-ZAP XR
H0491	HL-60, PMA 4H, subtracted	HL-60 Cells, PMA stimulated 4H	Blood	Cell Line		Uni-ZAP XR
H0492	HL-60, RA 4h, Subtracted	HL-60 Cells, RA stimulated for 4H	Blood	Cell Line		Uni-ZAP XR
H0493	HL-60, PMA 1d, subtracted	HL-60 Cells, PMA stimulated for 1 day	Blood	Cell Line		Uni-ZAP XR
H0494	Keratinocyte	Keratinocyte				pCMVSPORT 2.0
H0497	HEL cell line	HEL cell line		HEL 92.1.7		pSport1
H0505	Human Astrocyte	Human Astrocyte				pSport1
H0506	Ulcerative Colitis	Colon	Colon			pSport1
H0509	Liver, Hepatoma	Human Liver, Hepatoma, patient 8	Liver		disease	pCMVSPORT 3.0
H0510	Human Liver, normal	Human Liver, normal, Patient # 8	Liver			pCMVSPORT 3.0
H0512	Keratinocyte, lib 3	Keratinocyte				pCMVSPORT 2.0
H0517	Nasal polyps	Nasal polyps				pCMVSPORT 2.0
H0518	pBMC stimulated w/ poly I/C	pBMC stimulated with poly I/C				pCMVSPORT 3.0
H0519	NTERA2, control	NTERA2, Teratocarcinoma cell line				pCMVSPORT 3.0
H0520	NTERA2 + retinoic acid, 14 days	NTERA2, Teratocarcinoma cell line				pSport1
H0521	Primary Dendritic Cells, lib 1	Primary Dendritic cells				pCMVSPORT 3.0
H0522	Primary Dendritic cells, frac 2	Primary Dendritic cells				pCMVSPORT 3.0
H0523	Primary Dendritic	Primary Dendritic				pSport1

	cells,CapFinder2, frac 1	cells				
H0525	PCR, pBMC I/C treated	pBMC stimulated with poly I/C				PCRII
H0528	Poly[I]/Poly[C] Normal Lung Fibroblasts	Poly[I]/Poly[C] Normal Lung Fibroblasts				pCMVSPORT 3.0
H0529	Myeloid Progenitor Cell Line	TF-1 Cell Line; Myeloid progenitor cell line				pCMVSPORT 3.0
H0530	Human Dermal Endothelial Cells,untreated	Human Dermal Endothelial Cells; untreated				pSport1
H0535	Human ovary tumor cell OV350721	Ovarian Tumor, OV350721	Ovary		disease	pSport1
H0537	H. Primary Dendritic Cells,lib 3	Primary Dendritic cells				pCMVSPORT 2.0
H0538	Merkel Cells	Merkel cells	Lymph node			pSport1
H0539	Pancreas Islet Cell Tumor	Pancreas Islet Cell Tumour	Pancreas		disease	pSport1
H0540	Skin, burned	Skin, leg burned	Skin			pSport1
H0542	T Cell helper I	Helper T cell				pCMVSPORT 3.0
H0543	T cell helper II	Helper T cell				pCMVSPORT 3.0
H0544	Human endometrial stromal cells	Human endometrial stromal cells				pCMVSPORT 3.0
H0545	Human endometrial stromal cells-treated with progesterone	Human endometrial stromal cells-treated with proge				pCMVSPORT 3.0
H0546	Human endometrial stromal cells-treated with estradiol	Human endometrial stromal cells-treated with estra				pCMVSPORT 3.0
H0547	NTERA2 teratocarcinoma cell line+retinoic acid (14 days)	NTERA2, Teratocarcinoma cell line				pSport1
H0548	Human Skin Fibroblasts, normal	Human Skin Fibroblasts				pBluescript
H0549	H. Epididymus, caput & corpus	Human Epididymus, caput and corpus				Uni-ZAP XR
H0550	H. Epididymus, cauda	Human Epididymus, cauda				Uni-ZAP XR
H0551	Human Thymus Stromal Cells	Human Thymus Stromal Cells				pCMVSPORT 3.0
H0552	Signal trap,Femur Bone Marrow,pooled	Femur Bone marrow, pooled from 8 male/female				Other
H0553	Human Placenta	Human Placenta				pCMVSPORT 3.0
H0555	Rejected Kidney, lib 4	Human Rejected Kidney	Kidney		disease	pCMVSPORT 3.0
H0556	Activated T-cell(12h)/Thiouridine-re-excision	T-Cells	Blood	Cell Line		Uni-ZAP XR
H0559	HL-60, PMA 4H, re-excision	HL-60 Cells, PMA stimulated 4H	Blood	Cell Line		Uni-ZAP XR
H0560	KMH2	KMH2				pCMVSPORT 3.0
H0561	L428	L428				pCMVSPORT 3.0
H0562	Human Fetal Brain, normalized c5-11-26	Human Fetal Brain				pCMVSPORT 2.0
H0563	Human Fetal Brain,	Human Fetal Brain				pCMVSPORT

	normalized 50021F					2.0
H0564	Human Fetal Brain, normalized C5001F	Human Fetal Brain				pCMVSPORT 2.0
H0565	Human Fetal Brain, normalized 100024F	Human Fetal Brain				pCMVSPORT 2.0
H0566	Human Fetal Brain, normalized c50F	Human Fetal Brain				pCMVSPORT 2.0
H0567	Human Fetal Brain, normalized A5002F	Human Fetal Brain				pCMVSPORT 2.0
H0569	Human Fetal Brain, normalized CO	Human Fetal Brain				pCMVSPORT 2.0
H0570	Human Fetal Brain, normalized C500H	Human Fetal Brain				pCMVSPORT 2.0
H0571	Human Fetal Brain, normalized C500HE	Human Fetal Brain				pCMVSPORT 2.0
H0572	Human Fetal Brain, normalized AC5002	Human Fetal Brain				pCMVSPORT 2.0
H0574	Hepatocellular Tumor; re-excision	Hepatocellular Tumor	Liver		disease	Lambda ZAP II
H0575	Human Adult Pulmonary; re-excision	Human Adult Pulmonary	Lung			Uni-ZAP XR
H0576	Resting T-Cell; re-excision	T-Cells	Blood	Cell Line		Lambda ZAP II
H0578	Human Fetal Thymus	Fetal Thymus	Thymus			pSPORT1
H0579	Pericardium	Pericardium	Heart			pSPORT1
H0580	Dendritic cells, pooled	Pooled dendritic cells				pCMVSPORT 3.0
H0581	Human Bone Marrow, treated	Human Bone Marrow	Bone Marrow			pCMVSPORT 3.0
H0583	B Cell lymphoma	B Cell Lymphoma	B Cell		disease	pCMVSPORT 3.0
H0584	Activated T-cells, 24 hrs, re-excision	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0585	Activated T-Cells, 12 hrs, re-excision	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0586	Healing groin wound, 6.5 hours post incision	healing groin wound, 6.5 hours post incision - 2/	groin		disease	pCMVSPORT 3.0
H0587	Healing groin wound; 7.5 hours post incision	Groin-2/19/97	groin		disease	pCMVSPORT 3.0
H0589	CD34 positive cells (cord blood), re-ex	CD34 Positive Cells	Cord Blood			ZAP Express
H0590	Human adult small intestine, re-excision	Human Adult Small Intestine	Small Int.			Uni-ZAP XR
H0591	Human T-cell lymphoma, re-excision	T-Cell Lymphoma	T-Cell		disease	Uni-ZAP XR
H0592	Healing groin wound - zero hr post-incision (control)	HGS wound healing project; abdomen			disease	pCMVSPORT 3.0
H0593	Olfactory epithelium; nasal cavity	Olfactory epithelium from roof of left nasal cavity				pCMVSPORT 3.0
H0594	Human Lung Cancer; re-excision	Human Lung Cancer	Lung		disease	Lambda ZAP II
H0595	Stomach cancer (human); re-excision	Stomach Cancer - 5383A (human)			disease	Uni-ZAP XR
H0596	Human Colon Cancer; re-excision	Human Colon Cancer	Colon			Lambda ZAP II
H0597	Human Colon; re-excision	Human Colon				Lambda ZAP II
H0598	Human Stomach; re-excision	Human Stomach	Stomach			Uni-ZAP XR
H0599	Human Adult Heart; re-	Human Adult Heart	Heart			Uni-ZAP XR



	excision					
H0600	Healing Abdomen wound;70&90 min post incision	Abdomen			disease	pCMVSPORT 3.0
H0601	Healing Abdomen Wound;15 days post incision	Abdomen			disease	pCMVSPORT 3.0
H0602	Healing Abdomen Wound;21&29 days post incision	Abdomen			disease	pCMVSPORT 3.0
H0604	Human Pituitary, re-excision	Human Pituitary				pBluescript
H0606	Human Primary Breast Cancer;re-excision	Human Primary Breast Cancer	Breast		disease	Uni-ZAP XR
H0607	H.Leukocytes, normalized cot 50A3	H.Leukocytes				pCMVSPORT 1
H0608	H. Leukocytes, control	H.Leukocytes				pCMVSPORT 1
H0609	H. Leukocytes, normalized cot > 500A	H.Leukocytes				pCMVSPORT 1
H0610	H. Leukocytes, normalized cot 5A	H.Leukocytes				pCMVSPORT 1
H0611	H. Leukocytes, normalized cot 500 B	H.Leukocytes				pCMVSPORT 1
H0612	H.Leukocytes, normalized cot 50 B	H.Leukocytes				pCMVSPORT 1
H0613	H.Leukocytes, normalized cot 5B	H.Leukocytes				pCMVSPORT 1
H0614	H. Leukocytes, normalized cot 500 A	H.Leukocytes				pCMVSPORT 1
H0615	Human Ovarian Cancer Reexcision	Ovarian Cancer	Ovary		disease	Uni-ZAP XR
H0616	Human Testes, Reexcision	Human Testes	Testis			Uni-ZAP XR
H0617	Human Primary Breast Cancer Reexcision	Human Primary Breast Cancer	Breast		disease	Uni-ZAP XR
H0618	Human Adult Testes, Large Inserts, Reexcision	Human Adult Testis	Testis			Uni-ZAP XR
H0619	Fetal Heart	Human Fetal Heart	Heart			Uni-ZAP XR
H0620	Human Fetal Kidney; Reexcision	Human Fetal Kidney	Kidney			Uni-ZAP XR
H0622	Human Pancreas Tumor; Reexcision	Human Pancreas Tumor	Pancreas		disease	Uni-ZAP XR
H0623	Human Umbilical Vein; Reexcision	Human Umbilical Vein Endothelial Cells	Umbilical vein			Uni-ZAP XR
H0624	12 Week Early Stage Human II; Reexcision	Twelve Week Old Early Stage Human	Embryo			Uni-ZAP XR
H0625	Ku 812F Basophils Line	Ku 812F Basophils				pSPORT1
H0626	Saos2 Cells; Untreated	Saos2 Cell Line; Untreated				pSPORT1
H0627	Saos2 Cells; Vitamin D3 Treated	Saos2 Cell Line; Vitamin D3 Treated				pSPORT1
H0628	Human Pre-Differentiated Adipocytes	Human Pre-Differentiated Adipocytes				Uni-ZAP XR
H0630	Human Leukocytes,normalized control #4	Human Normalized leukocyte				pCMVSPORT 1
H0631	Saos2, Dexamethosome Treated	Saos2 Cell Line; Dexamethosome Treated				pSPORT1
H0632	Hepatocellular Tumor;re-excision	Hepatocellular Tumor	Liver			Lambda ZAP II

H0633	Lung Carcinoma A549 TNFalpha activated	TNFalpha activated A549--Lung Carcinoma			disease	pSport1
H0634	Human Testes Tumor, re- excision	Human Testes Tumor	Testis		disease	Uni-ZAP XR
H0635	Human Activated T-Cells, re-excision	Activated T-Cells	Blood	Cell Line		Uni-ZAP XR
H0636	Chondrocytes	Chondrocytes				pSport1
H0637	Dendritic Cells From CD34 Cells	Dendritic cells from CD34 cells				pSport1
H0638	CD40 activated monocyte dendritic cells	CD40 activated monocyte dendritic cells				pSport1
H0639	Ficoll Human Stromal Cells, 5Fu treated	Ficoll Human Stromal Cells, 5Fu treated				Other
H0640	Ficoll Human Stromal Cells, Untreated	Ficoll Human Stromal Cells, Untreated				Other
H0641	LPS activated derived dendritic cells	LPS activated monocyte derived dendritic cells				pSport1
H0642	Hep G2 Cells, lambda library	Hep G2 Cells				Other
H0643	Hep G2 Cells, PCR library	Hep G2 Cells				Other
H0644	Human Placenta (re- excision)	Human Placenta	Placenta			Uni-ZAP XR
H0645	Fetal Heart, re-excision	Human Fetal Heart	Heart			Uni-ZAP XR
H0646	Lung, Cancer (4005313 A3): Invasive Poorly Differentiated Lung Adenocarcinoma,	Metastatic squamous cell lung carcinoma, poorly di				pSport1
H0647	Lung, Cancer (4005163 B7): Invasive, Poorly Diff. Adenocarcinoma, Metastatic	Invasive poorly differentiated lung adenocarcinoma			disease	pSport1
H0648	Ovary, Cancer: (4004562 B6) Papillary Serous Cystic Neoplasm, Low Malignant Pot	Papillary Cstic neoplasm of low malignant potentia			disease	pSport1
H0649	Lung, Normal: (4005313 B1)	Normal Lung				pSport1
H0650	B-Cells	B-Cells				pCMVSPORT 3.0
H0651	Ovary, Normal: (9805C040R)	Normal Ovary				pSport1
H0652	Lung, Normal: (4005313 B1)	Normal Lung				pSport1
H0653	Stromal Cells	Stromal Cells				pSport1
H0654	Lung, Cancer: (4005313 A3) Invasive Poorly- differentiated Metastatic lung adenoc	Metastatic Squamous cell lung Carcinoma poorly dif				Other
H0656	B-cells (unstimulated)	B-cells (unstimulated)				pSport1
H0657	B-cells (stimulated)	B-cells (stimulated)				pSport1
H0658	Ovary, Cancer (9809C332): Poorly differentiated adenocarcinoma	9809C332- Poorly differentiate	Ovary & Fallopian Tubes		disease	pSport1
H0659	Ovary, Cancer (15395A1F): Grade II Papillary Carcinoma	Grade II Papillary Carcinoma, Ovary	Ovary		disease	pSport1

H0660	Ovary, Cancer: (15799A1F) Poorly differentiated carcinoma	Poorly differentiated carcinoma, ovary			disease	pSport1
H0661	Breast, Cancer: (4004943 A5)	Breast cancer			disease	pSport1
H0662	Breast, Normal: (4005522B2)	Normal Breast - #4005522(B2)	Breast			pSport1
H0663	Breast, Cancer: (4005522 A2)	Breast Cancer - #4005522(A2)	Breast		disease	pSport1
H0664	Breast, Cancer: (9806C012R)	Breast Cancer	Breast		disease	pSport1
H0665	Stromal cells 3.88	Stromal cells 3.88				pSport1
H0666	Ovary, Cancer: (4004332 A2)	Ovarian Cancer, Sample #4004332A2			disease	pSport1
H0667	Stromal cells(HBM3.18)	Stromal cell(HBM 3.18)				pSport1
H0668	stromal cell clone 2.5	stromal cell clone 2.5				pSport1
H0669	Breast, Cancer: (4005385 A2)	Breast Cancer (4005385A2)	Breast			pSport1
H0670	Ovary, Cancer(4004650 A3): Well-Differentiated Micropapillary Serous Carcinoma	Ovarian Cancer - 4004650A3				pSport1
H0671	Breast, Cancer: (9802C02OE)	Breast Cancer-Sample # 9802C02OE				pSport1
H0672	Ovary, Cancer: (4004576 A8)	Ovarian Cancer(4004576A8)	Ovary			pSport1
H0673	Human Prostate Cancer, Stage B2; re-excision	Human Prostate Cancer, stage B2	Prostate			Uni-ZAP XR
H0674	Human Prostate Cancer, Stage C; re-excision	Human Prostate Cancer, stage C	Prostate			Uni-ZAP XR
H0675	Colon, Cancer: (9808C064R)	Colon Cancer 9808C064R				pCMVSPORT 3.0
H0676	Colon, Cancer: (9808C064R)-total RNA	Colon Cancer 9808C064R				pCMVSPORT 3.0
H0677	TNFR degenerate oligo	B-Cells				PCRII
H0682	Serous Papillary Adenocarcinoma	serous papillary adenocarcinoma (9606G304SPA3B)				pCMVSPORT 3.0
H0683	Ovarian Serous Papillary Adenocarcinoma	Serous papillary adenocarcinoma, stage 3C (9804G01)				pCMVSPORT 3.0
H0684	Serous Papillary Adenocarcinoma	Ovarian Cancer- 9810G606	Ovaries			pCMVSPORT 3.0
H0685	Adenocarcinoma of Ovary, Human Cell Line, # OVCAR-3	Adenocarcinoma of Ovary, Human Cell Line, # OVCAR-				pCMVSPORT 3.0
H0686	Adenocarcinoma of Ovary, Human Cell Line	Adenocarcinoma of Ovary, Human Cell Line, # SW-626				pCMVSPORT 3.0
H0687	Human normal ovary(#9610G215)	Human normal ovary(#9610G215)	Ovary			pCMVSPORT 3.0
H0688	Human Ovarian Cancer(#9807G017)	Human Ovarian cancer(#9807G017), mRNA from Maura Ru				pCMVSPORT 3.0
H0689	Ovarian Cancer	Ovarian Cancer, #9806G019				pCMVSPORT 3.0
H0690	Ovarian Cancer, # 9702G001	Ovarian Cancer, #9702G001				pCMVSPORT 3.0

H0691	Normal Ovary, #9710G208	normal ovary, #9710G208				pCMVSPORT 3.0
H0692	BLyS Receptor from Expression Cloning	B Cell Lymphoma	B Cell			pCMVSPORT 3.0
H0693	Normal Prostate #ODQ3958EN	Normal Prostate Tissue # ODQ3958EN				pCMVSPORT 3.0
H0694	Prostate gland adenocarcinoma	Prostate gland, adenocarcinoma, mod/diff, gleason	prostate gland			pCMVSPORT 3.0
H0695	mononucleocytes from patient	mononucleocytes from patient at Shady Grove Hospit				pCMVSPORT 3.0
N0003	Human Fetal Brain	Human Fetal Brain				
N0006	Human Fetal Brain	Human Fetal Brain				
N0007	Human Hippocampus	Human Hippocampus				
N0009	Human Hippocampus, prescreened	Human Hippocampus				
S0001	Brain frontal cortex	Brain frontal cortex	Brain			Lambda ZAP II
S0002	Monocyte activated	Monocyte-activated	blood	Cell Line		Uni-ZAP XR
S0003	Human Osteoclastoma	Osteoclastoma	bone		disease	Uni-ZAP XR
S0004	Prostate	Prostate BPH	Prostate			Lambda ZAP II
S0005	Heart	Heart-left ventricle	Heart			pCDNA
S0006	Neuroblastoma	Human Neural Blastoma			disease	pCDNA
S0007	Early Stage Human Brain	Human Fetal Brain				Uni-ZAP XR
S0010	Human Amygdala	Amygdala				Uni-ZAP XR
S0011	STROMAL - OSTEOCLASTOMA	Osteoclastoma	bone		disease	Uni-ZAP XR
S0013	Prostate	Prostate	prostate			Uni-ZAP XR
S0014	Kidney Cortex	Kidney cortex	Kidney			Uni-ZAP XR
S0015	Kidney medulla	Kidney medulla	Kidney			Uni-ZAP XR
S0016	Kidney Pyramids	Kidney pyramids	Kidney			Uni-ZAP XR
S0020	Seven Trans Membrane Receptor Family	7TMD1				
S0021	Whole brain	Whole brain	Brain			ZAP Express
S0022	Human Osteoclastoma Stromal Cells - unamplified	Osteoclastoma Stromal Cells				Uni-ZAP XR
S0023	Human Kidney Cortex - unamplified	Human Kidney Cortex				
S0024	Human Kidney Medulla - unamplified	Human Kidney Medulla				
S0025	Human Kidney Pyramids - unamplified	Human Kidney Pyramids				
S0026	Stromal cell TF274	stromal cell	Bone marrow	Cell Line		Uni-ZAP XR
S0027	Smooth muscle, serum treated	Smooth muscle	Pulmonary artery	Cell Line		Uni-ZAP XR
S0028	Smooth muscle, control	Smooth muscle	Pulmonary artery	Cell Line		Uni-ZAP XR
S0029	brain stem	Brain stem	brain			Uni-ZAP XR
S0030	Brain pons	Brain Pons	Brain			Uni-ZAP XR
S0031	Spinal cord	Spinal cord	spinal cord			Uni-ZAP XR
S0032	Smooth muscle-ILb induced	Smooth muscle	Pulmonary artery	Cell Line		Uni-ZAP XR
S0035	Brain medulla oblongata	Brain medulla oblongata	Brain			Uni-ZAP XR
S0036	Human Substantia Nigra	Human Substantia Nigra				Uni-ZAP XR

S0037	Smooth muscle, IL1b induced	Smooth muscle	Pulmonary artery	Cell Line		Uni-ZAP XR
S0038	Human Whole Brain #2 - Oligo dT > 1.5Kb	Human Whole Brain #2				ZAP Express
S0039	Hypothalamus	Hypothalamus	Brain			Uni-ZAP XR
S0040	Adipocytes	Human Adipocytes from Osteoclastoma				Uni-ZAP XR
S0042	Testes	Human Testes				ZAP Express
S0044	Prostate BPH	prostate BPH	Prostate		disease	Uni-ZAP XR
S0045	Endothelial cells-control	Endothelial cell	endothelial cell-lung	Cell Line		Uni-ZAP XR
S0046	Endothelial-induced	Endothelial cell	endothelial cell-lung	Cell Line		Uni-ZAP XR
S0048	Human Hypothalamus, Alzheimer's	Human Hypothalamus, Alzheimer's			disease	Uni-ZAP XR
S0049	Human Brain, Striatum	Human Brain, Striatum				Uni-ZAP XR
S0050	Human Frontal Cortex, Schizophrenia	Human Frontal Cortex, Schizophrenia			disease	Uni-ZAP XR
S0051	Human Hypothalamus, Schizophrenia	Human Hypothalamus, Schizophrenia			disease	Uni-ZAP XR
S0052	neutrophils control	human neutrophils	blood	Cell Line		Uni-ZAP XR
S0053	Neutrophils IL-1 and LPS induced	human neutrophil induced	blood	Cell Line		Uni-ZAP XR
S0106	STRIATUM DEPRESSION		BRAIN		disease	Uni-ZAP XR
S0110	Brain Amygdala Depression		Brain		disease	Uni-ZAP XR
S0112	Hypothalamus		Brain			Uni-ZAP XR
S0114	Anergic T-cell	Anergic T-cell		Cell Line		Uni-ZAP XR
S0116	Bone marrow	Bone marrow	Bone marrow			Uni-ZAP XR
S0118	Smooth muscle control 2	Smooth muscle	Pulmonary artery	Cell Line		Uni-ZAP XR
S0122	Osteoclastoma-normalized A	Osteoclastoma	bone		disease	pBluescript
S0124	Smooth muscle-edited A	Smooth muscle	Pulmonary artery	Cell Line		Uni-ZAP XR
S0126	Osteoblasts	Osteoblasts	Knee	Cell Line		Uni-ZAP XR
S0132	Epithelial-TNF $\alpha$ and INF induced	Airway Epithelial				Uni-ZAP XR
S0134	Apoptotic T-cell	apoptotic cells		Cell Line		Uni-ZAP XR
S0136	PERM TF274	stromal cell	Bone marrow	Cell Line		Lambda ZAP II
S0140	eosinophil-IL5 induced	eosinophil	lung	Cell Line		Uni-ZAP XR
S0142	Macrophage-oxLDL	macrophage-oxidized LDL treated	blood	Cell Line		Uni-ZAP XR
S0144	Macrophage (GM-CSF treated)	Macrophage (GM-CSF treated)				Uni-ZAP XR
S0146	prostate-edited	prostate BPH	Prostate			Uni-ZAP XR
S0148	Normal Prostate	Prostate	prostate			Uni-ZAP XR
S0150	LNCAp prostate cell line	LNCAp Cell Line	Prostate	Cell Line		Uni-ZAP XR
S0152	PC3 Prostate cell line	PC3 prostate cell line				Uni-ZAP XR
S0168	Prostate/LNCAp, subtraction I	PC3 prostate cell line				pBluescript
S0174	Prostate-BPH subtracted II	Human Prostate BPH				pBluescript
S0176	Prostate, normal, subtraction I	Prostate	prostate			Uni-ZAP XR

S0180	Bone Marrow Stroma, TNF&LPS ind	Bone Marrow Stroma, TNF & LPS induced			disease	Uni-ZAP XR
S0182	Human B Cell 8866	Human B- Cell 8866				Uni-ZAP XR
S0184	7TM Receptor enriched, lib II	PBLS, 7TM receptor enriched				Other
S0186	PLBS 7TM receptor, Lib I	PBLS, 7TM receptor enriched				Other
S0188	Prostate,BPH, Lib 2	Human Prostate BPH			disease	pSport1
S0190	Prostate BPH,Lib 2, subtracted	Human Prostate BPH				pSport1
S0192	Synovial Fibroblasts (control)	Synovial Fibroblasts				pSport1
S0194	Synovial hypoxia	Synovial Fibroblasts				pSport1
S0196	Synovial IL-1/TNF stimulated	Synovial Fibroblasts				pSport1
S0206	Smooth Muscle- HASTE normalized	Smooth muscle	Pulmonary artery	Cell Line		pBluescript
S0208	Mesangial cell, frac 1	Mesangial cell				pSport1
S0210	Mesangial cell, frac 2	Mesangial cell				pSport1
S0212	Bone Marrow Stromal Cell, untreated	Bone Marrow Stromal Cell, untreated				pSport1
S0214	Human Osteoclastoma, re-excision	Osteoclastoma	bone		disease	Uni-ZAP XR
S0216	Neutrophils IL-1 and LPS induced	human neutrophil induced	blood	Cell Line		Uni-ZAP XR
S0218	Apoptotic T-cell, re-excision	apoptotic cells		Cell Line		Uni-ZAP XR
S0220	H. hypothalamus, frac A;re-excision	Hypothalamus	Brain			ZAP Express
S0222	H. Frontal cortex,epileptic;re-excision	H. Brain, Frontal Cortex, Epileptic	Brain		disease	Uni-ZAP XR
S0242	Synovial Fibroblasts (II/TNF), subt	Synovial Fibroblasts				pSport1
S0250	Human Osteoblasts II	Human Osteoblasts	Femur		disease	pCMVSPORT 2.0
S0254	7TM-PAMIX	PBLS, 7TM receptor enriched				PCR II
S0256	7TM-PHMIX	PBLS, 7TM receptor enriched				PCR II
S0260	Spinal Cord, re-excision	Spinal cord	spinal cord			Uni-ZAP XR
S0268	PRMIX	PRMIX (Human Prostate)	prostate			PCR II
S0270	PTMIX	PTMIX (Human Thymus)	Thymus			PCR II
S0276	Synovial hypoxia-RSF subtracted	Synovial fobroblasts (rheumatoid)	Synovial tissue			pSport1
S0278	H Macrophage (GM-CSF treated), re-excision	Macrophage (GM-CSF treated)				Uni-ZAP XR
S0280	Human Adipose Tissue, re-excision	Human Adipose Tissue				Uni-ZAP XR
S0282	Brain Frontal Cortex, re-excision	Brain frontal cortex	Brain			Lambda ZAP II
S0284	7TMCTT (Testis)	7TMCTP (Placenta)	Testis			PCR II
S0294	Larynx tumor	Larynx tumor	Larynx,vocal cord		disease	pSport1
S0296	Normal lung	Normal lung	Lung			pSport1
S0298	Bone marrow stroma,treated	Bone marrow stroma,treatedSB	Bone marrow			pSport1
S0300	Frontal lobe,dementia;re-	Frontal Lobe	Brain			Uni-ZAP XR

	excision	dementia/Alzheimer's				
S0306	Larynx normal #10 261-273	Larynx normal				pSport1
S0308	Spleen/normal	Spleen normal				pSport1
S0310	Normal trachea	Normal trachea				pSport1
S0312	Human osteoarthritic;fraction II	Human osteoarthritic cartilage			disease	pSport1
S0314	Human osteoarthritis;fraction I	Human osteoarthritic cartilage			disease	pSport1
S0316	Human Normal Cartilage,Fraction I	Human Normal Cartilage				pSport1
S0318	Human Normal Cartilage Fraction II	Human Normal Cartilage				pSport1
S0322	Siebben Polyposis	Siebben Polyposis				pSport1
S0328	Palate carcinoma	Palate carcinoma	Uvula		disease	pSport1
S0330	Palate normal	Palate normal	Uvula			pSport1
S0332	Pharynx carcinoma	Pharynx carcinoma	Hypopharynx			pSport1
S0334	Human Normal Cartilage Fraction III	Human Normal Cartilage				pSport1
S0336	Human Normal Cartilage Fraction IV	Human Normal Cartilage				pSport1
S0338	Human Osteoarthritic Cartilage Fraction III	Human osteoarthritic cartilage			disease	pSport1
S0340	Human Osteoarthritic Cartilage Fraction IV	Human osteoarthritic cartilage			disease	pSport1
S0342	Adipocytes;re-excision	Human Adipocytes from Osteoclastoma				Uni-ZAP XR
S0344	Macrophage-oxLDL; re-excision	macrophage-oxidized LDL treated	blood	Cell Line		Uni-ZAP XR
S0346	Human Amygdala;re-excision	Amygdala				Uni-ZAP XR
S0348	Cheek Carcinoma	Cheek Carcinoma			disease	pSport1
S0350	Pharynx Carcinoma	Pharynx carcinoma	Hypopharynx		disease	pSport1
S0352	Larynx Carcinoma	Larynx carcinoma			disease	pSport1
S0354	Colon Normal II	Colon Normal	Colon			pSport1
S0356	Colon Carcinoma	Colon Carcinoma	Colon		disease	pSport1
S0358	Colon Normal III	Colon Normal	Colon			pSport1
S0360	Colon Tumor II	Colon Tumor	Colon		disease	pSport1
S0362	Human Gastrocnemius	Gastrocnemius muscle				pSport1
S0364	Human Quadriceps	Quadriceps muscle				pSport1
S0366	Human Soleus	Soleus Muscle				pSport1
S0368	Human Pancreatic Langerhans	Islets of Langerhans				pSport1
S0370	Larynx carcinoma II	Larynx carcinoma			disease	pSport1
S0372	Larynx carcinoma III	Larynx carcinoma			disease	pSport1
S0374	Normal colon	Normal colon				pSport1
S0376	Colon Tumor	Colon Tumor			disease	pSport1
S0378	Pancreas normal PCA4 No	Pancreas Normal PCA4 No				pSport1
S0380	Pancreas Tumor PCA4 Tu	Pancreas Tumor PCA4 Tu			disease	pSport1
S0382	Larynx carcinoma IV	Larynx carcinoma			disease	pSport1
S0384	Tongue carcinoma	Tongue carcinoma			disease	pSport1
S0386	Human Whole Brain, re-excision	Whole brain	Brain			ZAP Express

S0388	Human Hypothalamus, schizophrenia, re-excision	Human Hypothalamus, Schizophrenia			disease	Uni-ZAP XR
S0390	Smooth muscle, control; re-excision	Smooth muscle	Pulmonary artery	Cell Line		Uni-ZAP XR
S0392	Salivary Gland	Salivary gland; normal				pSport1
S0394	Stomach; normal	Stomach; normal				pSport1
S0398	Testis; normal	Testis; normal				pSport1
S0400	Brain; normal	Brain; normal				pSport1
S0402	Adrenal Gland, normal	Adrenal gland; normal				pSport1
S0404	Rectum normal	Rectum, normal				pSport1
S0406	Rectum tumour	Rectum tumour				pSport1
S0408	Colon, normal	Colon, normal				pSport1
S0410	Colon, tumour	Colon, tumour				pSport1
S0412	Temporal cortex-Alzheimer; subtracted	Temporal cortex, alzheimer			disease	Other
S0414	Hippocampus, Alzheimer Subtracted	Hippocampus, Alzheimer Subtracted				Other
S0418	CHME Cell Line; treated 5 hrs	CHME Cell Line; treated				pCMVSPORT 3.0
S0420	CHME Cell Line, untreated	CHME Cell line, untreated				pSport1
S0422	Mo7e Cell Line GM-CSF treated (1ng/ml)	Mo7e Cell Line GM-CSF treated (1ng/ml)				pCMVSPORT 3.0
S0424	TF-1 Cell Line GM-CSF Treated	TF-1 Cell Line GM-CSF Treated				pSport1
S0426	Monocyte activated; re-excision	Monocyte-activated	blood	Cell Line		Uni-ZAP XR
S0428	Neutrophils control; re-excision	human neutrophils	blood	Cell Line		Uni-ZAP XR
S0430	Aryepiglottis Normal	Aryepiglottis Normal				pSport1
S0432	Sinus piniformis Tumour	Sinus piniformis Tumour				pSport1
S0434	Stomach Normal	Stomach Normal			disease	pSport1
S0436	Stomach Tumour	Stomach Tumour			disease	pSport1
S0438	Liver Normal Met5No	Liver Normal Met5No				pSport1
S0440	Liver Tumour Met 5 Tu	Liver Tumour				pSport1
S0442	Colon Normal	Colon Normal				pSport1
S0444	Colon Tumor	Colon Tumour			disease	pSport1
S0446	Tongue Tumour	Tongue Tumour				pSport1
S0448	Larynx Normal	Larynx Normal				pSport1
S0450	Larynx Tumour	Larynx Tumour				pSport1
S0452	Thymus	Thymus				pSport1
S0454	Placenta	Placenta	Placenta			pSport1
S0456	Tongue Normal	Tongue Normal				pSport1
S0458	Thyroid Normal (SDCA2 No)	Thyroid normal				pSport1
S0460	Thyroid Tumour	Thyroid Tumour				pSport1
S0462	Thyroid Thyroiditis	Thyroid Thyroiditis				pSport1
S0464	Larynx Normal	Larynx Normal				pSport1
S0466	Larynx Tumor	Larynx Tumor			disease	pSport1
S0468	Ea.hy.926 cell line	Ea.hy.926 cell line				pSport1
S0470	Adenocarcinoma	PYFD			disease	pSport1
S0472	Lung Mesothelium	PYBT				pSport1
S0474	Human blood platelets	Platelets	Blood platelets			Other



S0665	Human Amygdala; re-excision	Amygdala				Uni-ZAP XR
S3012	Smooth Muscle Serum Treated, Norm	Smooth muscle	Pulmonary artery	Cell Line		pBluescript
S3014	Smooth muscle, serum induced, re-exc	Smooth muscle	Pulmonary artery	Cell Line		pBluescript
S3020	TH2 cells	TH2 cells				Uni-ZAP XR
S6014	H. hypothalamus, frac A	Hypothalamus	Brain			ZAP Express
S6016	H. Frontal Cortex, Epileptic	H. Brain, Frontal Cortex, Epileptic	Brain		disease	Uni-ZAP XR
S6022	H. Adipose Tissue	Human Adipose Tissue				Uni-ZAP XR
S6024	Alzheimers, spongy change	Alzheimer's/Spongy change	Brain		disease	Uni-ZAP XR
S6026	Frontal Lobe, Dementia	Frontal Lobe dementia/Alzheimer's	Brain			Uni-ZAP XR
S6028	Human Manic Depression Tissue	Human Manic depression tissue	Brain		disease	Uni-ZAP XR
T0001	Human Brown Fat	Brown Fat				pBluescript SK-
T0002	Activated T-cells	Activated T-Cell, PBL fraction	Blood	Cell Line		pBluescript SK-
T0003	Human Fetal Lung	Human Fetal Lung				pBluescript SK-
T0004	Human White Fat	Human White Fat				pBluescript SK-
T0006	Human Pineal Gland	Human Pineal Gland				pBluescript SK-
T0007	Colon Epithelium	Colon Epithelium				pBluescript SK-
T0008	Colorectal Tumor	Colorectal Tumor			disease	pBluescript SK-
T0010	Human Infant Brain	Human Infant Brain				Other
T0023	Human Pancreatic Carcinoma	Human Pancreatic Carcinoma			disease	pBluescript SK-
T0039	HSA 172 Cells	Human HSA172 cell line				pBluescript SK-
T0040	HSC172 cells	SA172 Cells				pBluescript SK-
T0041	Jurkat T-cell G1 phase	Jurkat T-cell				pBluescript SK-
T0042	Jurkat T-Cell, S phase	Jurkat T-Cell Line				pBluescript SK-
T0047	T lymphocytes >70	T lymphocytes > 70				pBluescript SK-
T0048	Human Aortic Endothelium	Human Aortic Endothelium				pBluescript SK-
T0049	Aorta endothelial cells + TNF-a	Aorta endothelial cells				pBluescript SK-
T0060	Human White Adipose	Human White Fat				pBluescript SK-
T0067	Human Thyroid	Human Thyroid				pBluescript SK-
T0068	Normal Ovary, Premenopausal	Normal Ovary, Premenopausal				pBluescript SK-
T0069	Human Uterus, normal	Human Uterus, normal				pBluescript SK-
T0071	Human Bone Marrow	Human Bone Marrow				pBluescript SK-
T0074	Human Adult Retina	Human Adult Retina				pBluescript SK-
T0078	Human Liver, normal	Human Liver,				pBluescript

	adult	normal Adult				SK-
T0079	Human Kidney, normal Adult	Human Kidney, normal Adult				pBluescript SK-
T0082	Human Adult Retina	Human Adult Retina				pBluescript SK-
T0086	Human Pancreatic Carcinoma - Screened	Human Pancreatic Carcinoma			disease	pBluescript SK-
T0090	Liver, normal					pBluescript SK-
T0103	Human colon carcinoma (HCC) cell line					pBluescript SK-
T0104	HCC cell line metastasis to liver					pBluescript SK-
T0109	Human (HCC) cell line liver (mouse) metastasis, remake					pBluescript SK-
T0110	Human colon carcinoma (HCC) cell line, remake					pBluescript SK-
T0112	Human (Caco-2) cell line, adenocarcinoma, colon					pBluescript SK-
T0114	Human (Caco-2) cell line, adenocarcinoma, colon, remake					pBluescript SK-
T0115	Human Colon Carcinoma (HCC) cell line					pBluescript SK-
L0002	Atrium cDNA library Human heart					
L0004	ClonTech HL 1065a					
L0005	Clontech human aorta polyA+ mRNA (#6572)					
L0009	EST from 8p21.3-p22					
L0011	GM10791 library (Eric D. Green)					
L0015	Human					
L0017	Human (J. Swensen)					
L0021	Human adult (K. Okubo)					
L0022	Human adult lung 3" directed MboI cDNA					
L0024	Human brain ARSanders					
L0031	Human chromosome 11q23 mRNA (M. Katoh)					
L0032	Human chromosome 12p cDNAs					
L0033	Human chromosome 13q14 cDNA					
L0037	Human chromosome 5q31-q33 mRNA					
L0040	Human colon mucosa					
L0041	Human epidermal keratinocyte					
L0043	Human HaCaT keratinocyte cDNA					
L0045	Human keratinocyte differential display (B. Lin)					
L0052	Human normalized K562-cDNA					
L0053	Human pancreatic tumor					
L0055	Human promyelocyte					
L0060	Human thymus NSTH II					
L0065	Liver HepG2 cell line.					
L0070	Selected chromosome 21 cDNA library					

L0096	Subtracted human retina					
L0097	Subtracted human retinal pigment epithelium (RPE)					
L0103	DKFZphamy1	amygdala				
L0105	Human aorta polyA+ (TFujiwara)	aorta				
L0109	Human brain cDNA	brain				
L0116	Human fetal brain (Zakharev, V.M. and Belyavsky, A.V.)	brain				
L0118	Human fetal brain S. Meier-Ewert	brain				
L0126	Human fibroblast cDNA	fibroblast				
L0142	Human placenta cDNA (TFujiwara)	placenta				
L0143	Human placenta polyA+ (TFujiwara)	placenta				
L0145	Human retina (D.Swanson)	retina				
L0149	DKFZphsnu1	subthalamic nucleus				
L0151	Human testis (C. De Smet)	testis				
L0157	Human fetal brain (TFujiwara)		brain			
L0163	Human heart cDNA (YNakamura)		heart			
L0171	Human lung adenocarcinoma A549	lung adenocarcinoma		A549		
L0177	Human newborn melanocytes (T.Vogt)			Clonetics Corp. (San Diego, CA) strain #68 and 2486		
L0183	Human HeLa cells (M.Lovett)			HeLa		
L0194	Human pancreatic cancer cell line Patu 8988t	pancreatic cancer		Patu 8988t		
L0251	Homo sapiens laryngeal cancer	laryngeal cancer				
L0307	Human C3-A11N			C3-A11N; clonally related variant of OCI LY8-C3P		
L0351	Infant brain, Bento Soares					BA, M13-derived
L0352	Normalized infant brain, Bento Soares					BA, M13-derived
L0355	P, Human foetal Brain Whole tissue					Bluescript
L0356	S, Human foetal Adrenals tissue					Bluescript
L0361	Stratagene ovary (#937217)		ovary			Bluescript SK
L0362	Stratagene ovarian cancer (#937219)					Bluescript SK-
L0363	NCI_CGAP_GC2	germ cell tumor				Bluescript SK-
L0364	NCI_CGAP_GC5	germ cell tumor				Bluescript

					SK-
L0366	Stratagene schizo brain S11	schizophrenic brain S-11 frontal lobe			Bluescript SK-
L0367	NCL_CGAP_Sch1	Schwannoma tumor			Bluescript SK-
L0368	NCL_CGAP_SS1	synovial sarcoma			Bluescript SK-
L0369	NCL_CGAP_AA1	adrenal adenoma	adrenal gland		Bluescript SK-
L0370	Johnston frontal cortex	pooled frontal lobe	brain		Bluescript SK-
L0371	NCL_CGAP_Br3	breast tumor	breast		Bluescript SK-
L0372	NCL_CGAP_Co12	colon tumor	colon		Bluescript SK-
L0373	NCL_CGAP_Co11	tumor	colon		Bluescript SK-
L0374	NCL_CGAP_Co2	tumor	colon		Bluescript SK-
L0375	NCL_CGAP_Kid6	kidney tumor	kidney		Bluescript SK-
L0376	NCL_CGAP_Lar1	larynx	larynx		Bluescript SK-
L0378	NCL_CGAP_Lu1	lung tumor	lung		Bluescript SK-
L0379	NCL_CGAP_Lym3	lymphoma	lymph node		Bluescript SK-
L0381	NCL_CGAP_HN4	squamous cell carcinoma	pharynx		Bluescript SK-
L0382	NCL_CGAP_Pr25	epithelium (cell line)	prostate		Bluescript SK-
L0383	NCL_CGAP_Pr24	invasive tumor (cell line)	prostate		Bluescript SK-
L0384	NCL_CGAP_Pr23	prostate tumor	prostate		Bluescript SK-
L0385	NCL_CGAP_Gas1	gastric tumor	stomach		Bluescript SK-
L0386	NCL_CGAP_HN3	squamous cell carcinoma from base of tongue	tongue		Bluescript SK-
L0387	NCL_CGAP_GCB0	germinal center B-cells	tonsil		Bluescript SK-
L0388	NCL_CGAP_HN6	normal gingiva (cell line from immortalized kerati			Bluescript SK-
L0389	NCL_CGAP_HN5	normal gingiva (cell line from primary keratinocyt			Bluescript SK-
L0393	B, Human Liver tissue				gt11
L0394	H, Human adult Brain Cortex tissue				gt11
L0404	b4HB3MA Cot109+103+85-Bio				Lafmid A
L0407	b4HB3MA Cot18-Bio				Lafmid A
L0411	1-NIB				Lafmid BA
L0415	b4HB3MA Cot8-HAP-Ft				Lafmid BA
L0416	b4HB3MA-Cot0.38-HAP-B				Lafmid BA
L0418	b4HB3MA-Cot109+10-Bio				Lafmid BA
L0426	b4HB3MA-Cot51.5-HAP-Ft				Lafmid BA
L0427	b4HB3MA-FT20%-Biotin				Lafmid BA

L0428	Cot1374Ft-4HB3MA					Lafmid BA
L0429	Cot250Ft b4HB3MA					Lafmid BA
L0430	Cot250Ft-b4HB3MA					Lafmid BA
L0435	Infant brain, LLNL array of Dr. M. Soares 1NIB					lafmid BA
L0438	normalized infant brain cDNA	total brain	brain			lafmid BA
L0439	Soares infant brain 1NIB		whole brain			Lafmid BA
L0443	b4HB3MK					Lafmid BK
L0444	HB3MK					Lafmid BK
L0448	3HFLSK20					Lafmid K
L0451	N3HFLSK20					Lafmid K
L0454	Clontech adult human fat cell library HL1108A					lambda gt10
L0455	Human retina cDNA randomly primed sublibrary	retina	eye			lambda gt10
L0456	Human retina cDNA Tsp509I-cleaved sublibrary	retina	eye			lambda gt10
L0459	Adult heart, Clontech					Lambda gt11
L0460	Adult heart, Lambda gt11					Lambda gt11
L0462	WATM1					lambda gt11
L0465	TEST1, Human adult Testis tissue					lambda nmp1149
L0467	Fetal heart, Lambda ZAP Express					Lambda ZAP
L0468	HE6W					lambda zap
L0469	T, Human adult Rhabdomyosarcoma cell-line					Lambda Zap
L0470	BL29 Burkitt's lymphoma, Pascalis Sideras					lambda ZAP 2
L0471	Human fetal heart, Lambda ZAP Express					Lambda ZAP Express
L0475	KG1-a Lambda Zap Express cDNA library			KG1-a		Lambda Zap Express (Stratagene)
L0476	Fetal brain, Stratagene					Lambda ZAP II
L0477	HPLA CCLee	placenta				Lambda ZAP II
L0480	Stratagene cat#937212 (1992)					Lambda ZAP, pBluescript SK(-)
L0481	CD34+DIRECTIONAL					Lambda ZAPII
L0482	HT29M6					Lambda ZAPII
L0483	Human pancreatic islet					Lambda ZAPII
L0485	STRATAGENE Human skeletal muscle cDNA library, cat. #936215.	skeletal muscle	leg muscle			Lambda ZAPII
L0493	NCI_CGAP_Ov26	papillary serous carcinoma	ovary			pAMP1
L0497	NCI_CGAP_HSC4	CD34+, CD38- from normal bone marrow donor	bone marrow			pAMP1
L0498	NCI_CGAP_HSC3	CD34+, T negative, patient with chronic	bone marrow			pAMP1

		myelogenous				
L0499	NCI_CGAP_HSC2	stem cell 34+/38+	bone marrow			pAMP1
L0500	NCI_CGAP_Bm20	oligodendroglioma	brain			pAMP1
L0501	NCI_CGAP_Bm21	oligodendroglioma	brain			pAMP1
L0502	NCI_CGAP_Br15	adenocarcinoma	breast			pAMP1
L0504	NCI_CGAP_Br13	breast carcinoma in situ	breast			pAMP1
L0505	NCI_CGAP_Br12	invasive carcinoma	breast			pAMP1
L0506	NCI_CGAP_Br16	lobular carcinoma in situ	breast			pAMP1
L0507	NCI_CGAP_Br14	normal epithelium	breast			pAMP1
L0508	NCI_CGAP_Lu25	bronchioalveolar carcinoma	lung			pAMP1
L0509	NCI_CGAP_Lu26	invasive adenocarcinoma	lung			pAMP1
L0510	NCI_CGAP_Ov33	borderline ovarian carcinoma	ovary			pAMP1
L0511	NCI_CGAP_Ov34	borderline ovarian carcinoma	ovary			pAMP1
L0512	NCI_CGAP_Ov36	borderline ovarian carcinoma	ovary			pAMP1
L0513	NCI_CGAP_Ov37	early stage papillary serous carcinoma	ovary			pAMP1
L0514	NCI_CGAP_Ov31	papillary serous carcinoma	ovary			pAMP1
L0515	NCI_CGAP_Ov32	papillary serous carcinoma	ovary			pAMP1
L0517	NCI_CGAP_Pr1					pAMP10
L0518	NCI_CGAP_Pr2					pAMP10
L0519	NCI_CGAP_Pr3					pAMP10
L0520	NCI_CGAP_Alv1	alveolar rhabdomyosarcoma				pAMP10
L0521	NCI_CGAP_Ew1	Ewing's sarcoma				pAMP10
L0522	NCI_CGAP_Kid1	kidney				pAMP10
L0523	NCI_CGAP_Lip2	liposarcoma				pAMP10
L0524	NCI_CGAP_Li1	liver				pAMP10
L0525	NCI_CGAP_Li2	liver				pAMP10
L0526	NCI_CGAP_Pr12	metastatic prostate bone lesion				pAMP10
L0527	NCI_CGAP_Ov2	ovary				pAMP10
L0528	NCI_CGAP_Pr5	prostate				pAMP10
L0529	NCI_CGAP_Pr6	prostate				pAMP10
L0530	NCI_CGAP_Pr8	prostate				pAMP10
L0531	NCI_CGAP_Pr20	prostate metastasis, liver				pAMP10
L0532	NCI_CGAP_Thy1	thyroid				pAMP10
L0533	NCI_CGAP_HSC1	stem cells	bone marrow			pAMP10
L0534	Chromosome 7 Fetal Brain cDNA Library	brain	brain			pAMP10
L0535	NCI_CGAP_Br5	infiltrating ductal carcinoma	breast			pAMP10
L0536	NCI_CGAP_Br4	normal ductal tissue	breast			pAMP10
L0537	NCI_CGAP_Ov6	normal cortical stroma	ovary			pAMP10
L0539	Chromosome 7 Placental cDNA Library		placenta			pAMP10
L0540	NCI_CGAP_Pr10	invasive prostate tumor	prostate			pAMP10
L0541	NCI_CGAP_Pr7	low-grade prostatic neoplasia	prostate			pAMP10
L0542	NCI_CGAP_Pr11	normal prostatic epithelial cells	prostate			pAMP10

L0543	NCI_CGAP_Pr9	normal prostatic epithelial cells	prostate			pAMP10
L0544	NCI_CGAP_Pr4	prostatic intraepithelial neoplasia - high grade	prostate			pAMP10
L0545	NCI_CGAP_Pr4.1	prostatic intraepithelial neoplasia - high grade	prostate			pAMP10
L0546	NCI_CGAP_Pr18	stroma	prostate			pAMP10
L0547	NCI_CGAP_Pr16	tumor	prostate			pAMP10
L0549	NCI_CGAP_HN10	carcinoma in situ from retromolar trigone				pAMP10
L0550	NCI_CGAP_HN9	normal squamous epithelium from retromolar trigone				pAMP10
L0551	NCI_CGAP_HN7	normal squamous epithelium, floor of mouth				pAMP10
L0552	NCI_CGAP_HN8	well-differentiated invasive carcinoma, floor of m				pAMP10
L0554	NCI_CGAP_Li8		liver			pAMP10
L0555	NCI_CGAP_Lu34	large cell carcinoma	lung			pAMP10
L0557	NCI_CGAP_Lu21	small cell carcinoma	lung			pAMP10
L0558	NCI_CGAP_Ov40	endometrioid ovarian metastasis	ovary			pAMP10
L0559	NCI_CGAP_Ov39	papillary serous ovarian metastasis	ovary			pAMP10
L0560	NCI_CGAP_HN12	moderate to poorly differentiated invasive carcino	tongue			pAMP10
L0561	NCI_CGAP_HN11	normal squamous epithelium	tongue			pAMP10
L0562	Chromosome 7 HeLa cDNA Library			HeLa cell line; ATCC		pAMP10
L0563	Human Bone Marrow Stromal Fibroblast	bone marrow				pBluescript
L0564	Jia bone marrow stroma	bone marrow stroma				pBluescript
L0565	Normal Human Trabecular Bone Cells	Bone	Hip			pBluescript
L0581	Stratagene liver (#937224)		liver			pBluescript SK
L0583	Stratagene cDNA library Human fibroblast, cat#937212					pBluescript SK(+)
L0584	Stratagene cDNA library Human heart, cat#936208					pBluescript SK(+)
L0586	HTCDL1					pBluescript SK(-)
L0587	Stratagene colon HT29 (#937221)					pBluescript SK-
L0588	Stratagene endothelial cell 937223					pBluescript SK-
L0589	Stratagene fetal retina 937202					pBluescript SK-
L0590	Stratagene fibroblast (#937212)					pBluescript SK-
L0591	Stratagene HeLa cell s3 937216					pBluescript SK-

L0592	Stratagene hNT neuron (#937233)					pBluescript SK-
L0593	Stratagene neuroepithelium (#937231)					pBluescript SK-
L0594	Stratagene neuroepithelium NT2RAMI 937234					pBluescript SK-
L0595	Stratagene NT2 neuronal precursor 937230	neuroepithelial cells	brain			pBluescript SK-
L0596	Stratagene colon (#937204)		colon			pBluescript SK-
L0597	Stratagene corneal stroma (#937222)		cornea			pBluescript SK-
L0598	Morton Fetal Cochlea	cochlea	ear			pBluescript SK-
L0599	Stratagene lung (#937210)		lung			pBluescript SK-
L0600	Weizmann Olfactory Epithelium	olfactory epithelium	nose			pBluescript SK-
L0601	Stratagene pancreas (#937208)		pancreas			pBluescript SK-
L0602	Pancreatic Islet	pancreatic islet	pancreas			pBluescript SK-
L0603	Stratagene placenta (#937225)		placenta			pBluescript SK-
L0604	Stratagene muscle 937209	muscle	skeletal muscle			pBluescript SK-
L0605	Stratagene fetal spleen (#937205)	fetal spleen	spleen			pBluescript SK-
L0606	NCI_CGAP_Lym5	follicular lymphoma	lymph node			pBluescript SK-
L0607	NCI_CGAP_Lym6	mantle cell lymphoma	lymph node			pBluescript SK-
L0608	Stratagene lung carcinoma 937218	lung carcinoma	lung	NCI-H69		pBluescript SK-
L0609	Schiller astrocytoma	astrocytoma	brain			pBluescript SK- (Stratagene)
L0610	Schiller glioblastoma multiforme	glioblastoma multiforme	brain			pBluescript SK- (Stratagene)
L0611	Schiller meningioma	meningioma	brain			pBluescript SK- (Stratagene)
L0612	Schiller oligodendroglioma	oligodendroglioma	brain			pBluescript SK- (Stratagene)
L0615	22 week old human fetal liver cDNA library					pBluescriptII SK(-)
L0617	Chromosome 22 exon					pBluescriptII KS+
L0619	Chromosome 9 exon II					pBluescriptII KS+
L0622	HM1					pcDNAII (Invitrogen)
L0623	HM3	pectoral muscle (after mastectomy)				pcDNAII (Invitrogen)
L0626	NCI_CGAP_GC1	bulk germ cell seminoma				pCMV-SPORT2
L0627	NCI_CGAP_Col	bulk tumor	colon			pCMV-SPORT2
L0628	NCI_CGAP_Ov1	ovary bulk tumor	ovary			pCMV-



						SPORT2
L0629	NCI_CGAP_Mel3	metastatic melanoma to bowel	bowel (skin primary)			pCMV-SPORT4
L0630	NCI_CGAP_CNS1	substantia nigra	brain			pCMV-SPORT4
L0631	NCI_CGAP_Br7		breast			pCMV-SPORT4
L0632	NCI_CGAP_Li5	hepatic adenoma	liver			pCMV-SPORT4
L0633	NCI_CGAP_Lu6	small cell carcinoma	lung			pCMV-SPORT4
L0634	NCI_CGAP_Ov8	serous adenocarcinoma	ovary			pCMV-SPORT4
L0635	NCI_CGAP_PNS1	dorsal root ganglion	peripheral nervous system			pCMV-SPORT4
L0636	NCI_CGAP_Pit1	four pooled pituitary adenomas	brain			pCMV-SPORT6
L0637	NCI_CGAP_Brn53	three pooled meningiomas	brain			pCMV-SPORT6
L0638	NCI_CGAP_Brn35	tumor, 5 pooled (see description)	brain			pCMV-SPORT6
L0639	NCI_CGAP_Brn52	tumor, 5 pooled (see description)	brain			pCMV-SPORT6
L0640	NCI_CGAP_Br18	four pooled high-grade tumors, including two prima	breast			pCMV-SPORT6
L0641	NCI_CGAP_Co17	juvenile granulosa tumor	colon			pCMV-SPORT6
L0642	NCI_CGAP_Co18	moderately differentiated adenocarcinoma	colon			pCMV-SPORT6
L0643	NCI_CGAP_Co19	moderately differentiated adenocarcinoma	colon			pCMV-SPORT6
L0644	NCI_CGAP_Co20	moderately differentiated adenocarcinoma	colon			pCMV-SPORT6
L0645	NCI_CGAP_Co21	moderately differentiated adenocarcinoma	colon			pCMV-SPORT6
L0646	NCI_CGAP_Co14	moderately-differentiated adenocarcinoma	colon			pCMV-SPORT6
L0647	NCI_CGAP_Sar4	five pooled sarcomas, including myxoid liposarcoma	connective tissue			pCMV-SPORT6
L0648	NCI_CGAP_Eso2	squamous cell carcinoma	esophagus			pCMV-SPORT6
L0649	NCI_CGAP_GU1	2 pooled high-grade transitional cell tumors	genitourinary tract			pCMV-SPORT6
L0650	NCI_CGAP_Kid13	2 pooled Wilms' tumors, one primary and one metast	kidney			pCMV-SPORT6
L0651	NCI_CGAP_Kid8	renal cell tumor	kidney			pCMV-SPORT6
L0652	NCI_CGAP_Lu27	four pooled poorly-differentiated adenocarcinomas	lung			pCMV-SPORT6
L0653	NCI_CGAP_Lu28	two pooled squamous cell carcinomas	lung			pCMV-SPORT6

L0654	NCI_CGAP_Lu31		lung, cell line			pCMV-SPORT6
L0655	NCI_CGAP_Lym12	lymphoma, follicular mixed small and large cell	lymph node			pCMV-SPORT6
L0656	NCI_CGAP_Ov38	normal epithelium	ovary			pCMV-SPORT6
L0657	NCI_CGAP_Ov23	tumor, 5 pooled (see description)	ovary			pCMV-SPORT6
L0658	NCI_CGAP_Ov35	tumor, 5 pooled (see description)	ovary			pCMV-SPORT6
L0659	NCI_CGAP_Pan1	adenocarcinoma	pancreas			pCMV-SPORT6
L0661	NCI_CGAP_Mel15	malignant melanoma, metastatic to lymph node	skin			pCMV-SPORT6
L0662	NCI_CGAP_Gas4	poorly differentiated adenocarcinoma with signet r	stomach			pCMV-SPORT6
L0663	NCI_CGAP_Ut2	moderately-differentiated endometrial adenocarcino	uterus			pCMV-SPORT6
L0664	NCI_CGAP_Ut3	poorly-differentiated endometrial adenocarcinoma,	uterus			pCMV-SPORT6
L0665	NCI_CGAP_Ut4	serous papillary carcinoma, high grade, 2 pooled t	uterus			pCMV-SPORT6
L0666	NCI_CGAP_Ut1	well-differentiated endometrial adenocarcinoma, 7	uterus			pCMV-SPORT6
L0667	NCI_CGAP_CML1	myeloid cells, 18 pooled CML cases, BCR/ABL rearra	whole blood			pCMV-SPORT6
L0669	Human MCF7 cDNA subtracted with MDA-MB-231 cDNA	breast adenocarcinoma	breast	MCF7		pCR II [Invitrogen]
L0684	Stanley Frontal SB pool 1	frontal lobe (see description)	brain			pCR2.1-TOPO (Invitrogen)
L0685	Stanley Frontal SN pool 1	frontal lobe (see description)	brain			pCR2.1-TOPO (Invitrogen)
L0686	Stanley Frontal SN pool 2	frontal lobe (see description)	brain			pCR2.1-TOPO (Invitrogen)
L0688	Stanley Hippocampus SB pool 1	hippocampus (see description)	brain			pCR2.1-TOPO (Invitrogen)
L0695	Human Glioblastoma Cell		Brain	BT-325		PCR II, Invitrogen
L0697	Testis 1					PGEM 5zf(+)
L0698	Testis 2					PGEM 5zf(+)
L0700	Outward Alu-primed hncDNA library					pGEM-3Z
L0717	Gessler Wilms tumor					pSPORT1
L0718	Testis 5					pSPORT1
L0719	human embryo cDNA library	Whole embryo				pSPORT1

L0731	Soares_pregnant_uterus_NbHPU		uterus			pT7T3-Pac
L0738	Human colorectal cancer					pT7T3D
L0740	Soares melanocyte 2NbHM	melanocyte				pT7T3D (Pharmacia) with a modified polylinker
L0741	Soares adult brain N2b4HB55Y		brain			pT7T3D (Pharmacia) with a modified polylinker
L0742	Soares adult brain N2b5HB55Y		brain			pT7T3D (Pharmacia) with a modified polylinker
L0743	Soares breast 2NbHBst		breast			pT7T3D (Pharmacia) with a modified polylinker
L0744	Soares breast 3NbHBst		breast			pT7T3D (Pharmacia) with a modified polylinker
L0745	Soares retina N2b4HR	retina	eye			pT7T3D (Pharmacia) with a modified polylinker
L0746	Soares retina N2b5HR	retina	eye			pT7T3D (Pharmacia) with a modified polylinker
L0747	Soares_fetal_heart_NbHH 19W		heart			pT7T3D (Pharmacia) with a modified polylinker
L0748	Soares fetal liver spleen 1NFLS		Liver and Spleen			pT7T3D (Pharmacia) with a modified polylinker
L0749	Soares_fetal_liver_spleen_1NFLS_S1		Liver and Spleen			pT7T3D (Pharmacia) with a modified polylinker
L0750	Soares_fetal_lung_NbHL1 9W		lung			pT7T3D (Pharmacia) with a modified polylinker
L0751	Soares ovary tumor NbHOT	ovarian tumor	ovary			pT7T3D (Pharmacia) with a modified polylinker
L0752	Soares_parathyroid_tumor	parathyroid tumor	parathyroid			pT7T3D

	_NbHPA		gland			(Pharmacia) with a modified polylinker
L0753	Soares_pineal_gland_N3H PG		pineal gland			pT7T3D (Pharmacia) with a modified polylinker
L0754	Soares_placenta_Nb2HP		placenta			pT7T3D (Pharmacia) with a modified polylinker
L0755	Soares_placenta_8to9weeks_2NbHP8to9W		placenta			pT7T3D (Pharmacia) with a modified polylinker
L0756	Soares_multiple_sclerosis_2NbHMSP	multiple sclerosis lesions				pT7T3D (Pharmacia) with a modified polylinker V_TYPE
L0757	Soares_senescent_fibroblasts_NbHSF	senescent fibroblast				pT7T3D (Pharmacia) with a modified polylinker V_TYPE
L0758	Soares_testis_NHT					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0759	Soares_total_fetus_Nb2HF8_9w					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0760	Barstead_aorta_HPLRB3	aorta				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0761	NCI_CGAP_CLL1	B-cell, chronic lymphocytic leukemia				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0762	NCI_CGAP_Br1.1	breast				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0763	NCI_CGAP_Br2	breast				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0764	NCI_CGAP_Co3	colon				pT7T3D-Pac (Pharmacia) with a

						modified polylinker
L0765	NCL_CGAP_Co4	colon				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0766	NCL_CGAP_GCB1	germinal center B cell				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0767	NCL_CGAP_GC3	pooled germ cell tumors				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0768	NCL_CGAP_GC4	pooled germ cell tumors				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0769	NCL_CGAP_Bm25	anaplastic oligodendroglioma	brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0770	NCL_CGAP_Bm23	glioblastoma (pooled)	brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0771	NCL_CGAP_Co8	adenocarcinoma	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0772	NCL_CGAP_Co10	colon tumor RER+	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0773	NCL_CGAP_Co9	colon tumor RER+	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0774	NCL_CGAP_Kid3		kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0775	NCL_CGAP_Kid5	2 pooled tumors (clear cell type)	kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0776	NCL_CGAP_Lu5	carcinoid	lung			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0777	Soares_NhHMPu_S1	Pooled human melanocyte, fetal	mixed (see below)			pT7T3D-Pac (Pharmacia)

		heart, and pregnant				with a modified polylinker
L0778	Barstead pancreas HPLRB1		pancreas			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0779	Soares_NFL_T_GBC_S1		pooled			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0780	Soares_NSF_F8_9W_OT_PA_P_S1		pooled			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0782	NCI_CGAP_Pr21	normal prostate	prostate			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0783	NCI_CGAP_Pr22	normal prostate	prostate			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0784	NCI_CGAP_Lei2	leiomyosarcoma	soft tissue			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0785	Barstead spleen HPLRB2		spleen			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0786	Soares_NbHFB		whole brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0787	NCI_CGAP_Sub1					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0788	NCI_CGAP_Sub2					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0789	NCI_CGAP_Sub3					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0790	NCI_CGAP_Sub4					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0791	NCI_CGAP_Sub5					pT7T3D-Pac

						(Pharmacia) with a modified polylinker
L0792	NCI_CGAP_Sub6					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0793	NCI_CGAP_Sub7					pT7T3D-Pac (Pharmacia) with a modified polylinker
L0794	NCI_CGAP_GC6	pooled germ cell tumors				pT7T3D-Pac (Pharmacia) with a modified polylinker
L0796	NCI_CGAP_Bm50	medulloblastoma	brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0800	NCI_CGAP_Co16	colon tumor, RER+	colon			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0803	NCI_CGAP_Kid11		kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0804	NCI_CGAP_Kid12	2 pooled tumors (clear cell type)	kidney			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0805	NCI_CGAP_Lu24	carcinoid	lung			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0806	NCI_CGAP_Lu19	squamous cell carcinoma, poorly differentiated (4	lung			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0807	NCI_CGAP_Ov18	fibrotheoma	ovary			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0808	Barstead prostate BPH HPLRB4 1		prostate			pT7T3D-Pac (Pharmacia) with a modified polylinker
L0809	NCI_CGAP_Pr28		prostate			pT7T3D-Pac (Pharmacia) with a modified polylinker

L0811	BATM2					PTZ18
L2244	Human Fetal Brain+Liver+Heart		Brain, Liver, Heart			pUC19
L2250	Human cerebral cortex	cerebral cortex				
L2251	Human fetal lung	Fetal lung				
L2269	NCI_CGAP_Thy11	follicular carcinoma	thyroid			pAMP10
L3872	NCI_CGAP_Skn1		skin, normal, 4 pooled sa			pCMV-SPORT6
L3904	NCI_CGAP_Brn64	glioblastoma with EGFR amplification	brain			pCMV-SPORT6
L3905	NCI_CGAP_Brn67	anaplastic oligodendroglioma with 1p/19q loss	brain			pCMV-SPORT6
L4497	NCI_CGAP_Br22	invasive ductal carcinoma, 3 pooled samples	breast			pCMV-SPORT6
L4500	NCI_CGAP_HN16	moderate to poorly differentiated invasive carcino	mouth			pAMP10
L4501	NCI_CGAP_Sub8					pT7T3D-Pac (Pharmacia) with a modified polylinker
L4507	NCI_CGAP_Thy6	normal epithelium	thyroid			pAMP10
L4508	NCI_CGAP_Thy8	normal epithelium	thyroid			pAMP10
L4556	NCI_CGAP_HN13	squamous cell carcinoma	tongue			pCMV-SPORT6
L4559	NCI_CGAP_Thy3	follicular carcinoma	thyroid			pCMV-SPORT6
L4669	NCI_CGAP_Ov41	serous papillary tumor	ovary			pCMV-SPORT6
L4747	NCI_CGAP_Brn41	oligodendroglioma	brain			pT7T3D-Pac (Pharmacia) with a modified polylinker
L5286	NCI_CGAP_Thy10	medullary carcinoma	thyroid			pAMP10
L5564	NCI_CGAP_HN20		normal head/neck tissue			pAMP1
L5565	NCI_CGAP_Brn66	glioblastoma with probably TP53 mutation and witho	brain			pCMV-SPORT6
L5566	NCI_CGAP_Brn70	anaplastic oligodendroglioma	brain			pCMV-SPORT6.ccd b
L5568	NCI_CGAP_HN21	nasopharyngeal carcinoma	head/neck			pAMP1
L5569	NCI_CGAP_HN17	normal epithelium	nasopharynx			pAMP10
L5574	NCI_CGAP_HN19	normal epithelium	nasopharynx			pAMP10
L5575	NCI_CGAP_Brn65	glioblastoma without EGFR amplification	brain			pCMV-SPORT6
L5622	NCI_CGAP_Skn3		skin			pCMV-SPORT6
L5623	NCI_CGAP_Skn4	squamous cell carcinoma	skin			pCMV-SPORT6



TABLE 5

OMIM Reference	Description
100710	Myasthenic syndrome, slow-channel congenital, 601462
102200	Somatotrophinoma
102540	Cardiomyopathy, idiopathic dilated
102770	Myoadenylate deaminase deficiency
103000	Hemolytic anemia due to adenylate kinase deficiency
103050	Autism, succinylpurinemic
103050	Adenylosuccinase deficiency
103581	Albright hereditary osteodystrophy-2
103600	[Dysalbuminemic hyperthyroxinemia]
103600	[Dysalbuminemic hyperzincemia], 194470
103600	Analbuminemia
103850	Aldolase A deficiency
104150	[AFP deficiency, congenital]
104150	[Hereditary persistence of alpha-fetoprotein]
104311	Alzheimer disease-3
104500	Amelogenesis imperfecta-2, hypoplastic local type
104770	Amyloidosis, secondary, susceptibility to
106100	Angioedema, hereditary
106165	Hypertension, essential, 145500
106180	Myocardial infarction, susceptibility to
106300	Ankylosing spondylitis
107280	Cerebrovascular disease, occlusive
107280	Alpha-1-antichymotrypsin deficiency
107300	Antithrombin III deficiency
107400	Emphysema
107400	Emphysema-cirrhosis
107470	Atypical mycobacterial infection, familial disseminated, 209950
107470	BCG infection, generalized familial
107470	Tuberculosis, susceptibility to
107670	Apolipoprotein A-II deficiency
107741	Hyperlipoproteinemia, type III
107777	Diabetes insipidus, nephrogenic, autosomal recessive, 222000
108725	Atherosclerosis, susceptibility to
108730	Brody myopathy, 601003
108800	Atrial septal defect, secundum type
108962	Hypertension, salt-resistant
109150	Machado-Joseph disease
109270	Renal tubular acidosis, distal, 179800
109270	Spherocytosis, hereditary
109270	[Acanthocytosis, one form]
109270	[Elliptocytosis, Malaysian-Melanesian type]
109270	Hemolytic anemia due to band 3 defect
109560	Leukemia/lymphoma, B-cell, 3

110700	Vivax malaria, susceptibility to
112410	Hypertension with brachydactyly
113520	Hyperleucinemia-isoleucinemia or hypervalinemia
113900	Heart block, progressive familial, type I
114240	Muscular dystrophy, limb-girdle, type 2A, 253600
114350	Leukemia, acute myeloid
114835	Monocyte carboxyesterase deficiency
115660	Cataract, cerulean, type 1
116806	Colorectal cancer
117700	[Hypoceruloplasminemia, hereditary]
117700	Hemosiderosis, systemic, due to aceruloplasminemia
118210	Charcot-Marie-Tooth neuropathy-2A
118425	Myotonia congenita, dominant, 160800
118425	Myotonia congenita, recessive, 255700
118425	Myotonia levior, recessive
118511	Schizophrenia, neurophysiologic defect in
120110	Metaphyseal chondrodysplasia, Schmid type
120120	Epidermolysis bullosa dystrophica, dominant, 131750
120120	Epidermolysis bullosa dystrophica, recessive, 226600
120120	Epidermolysis bullosa, pretibial, 131850
120150	Osteogenesis imperfecta, 4 clinical forms, 166200, 166210, 259420, 166220
120150	Osteoporosis, idiopathic, 166710
120150	Ehlers-Danlos syndrome, type VIIA1, 130060
120160	Osteogenesis imperfecta, 4 clinical forms, 166200, 166210, 259420, 166220
120160	Osteoporosis, idiopathic, 166710
120160	Ehlers-Danlos syndrome, type VIIA2, 130060
120160	Marfan syndrome, atypical
120220	Bethlem myopathy, 158810
120240	Bethlem myopathy, 158810
120290	OSMED syndrome, 215150
120290	Stickler syndrome, type II, 184840
120435	Muir-Torre syndrome, 158320
120435	Colorectal cancer, hereditary, nonpolyposis, type 1 Ovarian cancer
120436	Muir-Torre family cancer syndrome, 158320
120436	Turcot syndrome with glioblastoma, 276300
120436	Colorectal cancer, hereditary nonpolyposis, type 2
120550	C1q deficiency, type A
120570	C1q deficiency, type B
120575	C1q deficiency, type C
120700	C3 deficiency
120810	C4 deficiency
120820	C4 deficiency
120900	C5 deficiency
120950	C8 deficiency, type I
120960	C8 deficiency, type II

121011	Deafness, autosomal dominant 3, 601544
121011	Deafness, autosomal recessive 1, 220290
121014	Heterotaxia, viscerotaxial, autosomal recessive
121050	Contractural arachnodactyly, congenital
121360	Myeloid leukemia, acute, M4Eo subtype
121800	Corneal dystrophy, crystalline, Schnyder
122500	[Transcortin deficiency]
122720	Nicotine addiction, protection from
122720	Coumarin resistance, 122700
123000	Craniometaphyseal dysplasia
123580	Cataract, congenital, autosomal dominant
123940	White sponge nevus, 193900
124030	Parkinsonism, susceptibility to
124030	Debrisoquine sensitivity
124080	CMO II deficiency
125490	Dentinogenesis imperfecta-1
126150	Diphtheria, susceptibility to
126340	Xeroderma pigmentosum, group D, 278730
126391	DNA ligase I deficiency
126600	Drusen, radial, autosomal dominant
126650	Chloride diarrhea, congenital, Finnish type, 214700
126650	Colon cancer
129010	Neuropathy, congenital hypomyelinating, 1
129500	Ectodermal dysplasia, hidrotic
129900	EEC syndrome-1
130410	Glutaricaciduria, type IIB
130500	Elliptocytosis-1
131100	Multiple endocrine neoplasia I
131100	Prolactinoma, hyperparathyroidism, carcinoid syndrome
131100	Carcinoid tumor of lung
131195	Hereditary hemorrhagic telangiectasia-1, 187300
131210	Atherosclerosis, susceptibility to
131400	Eosinophilia, familial
132700	Cylindromatosis
133171	[Erythrocytosis, familial], 133100
133200	Erythrokeratoderma variabilis
133780	Vitreoretinopathy, exudative, familial
134570	Factor XIII A deficiency
134580	Factor XIII B deficiency
134790	Hyperferritinemia-cataract syndrome, 600886
135300	Fibromatosis, gingival
135700	Fibrosis of extraocular muscles, congenital, 1
135940	Ichthyosis vulgaris, 146700
136132	[Fish-odor syndrome], 602079
136350	Pfeiffer syndrome, 101600
136435	Ovarian dysgenesis, hypergonadotropic, with normal karyotype,

	233300
136533	Rhabdomyosarcoma, alveolar, 268220
136550	Macular dystrophy, North Carolina type
136836	Fucosyltransferase-6 deficiency
138040	Cortisol resistance
138140	Glucose transport defect, blood-brain barrier
138320	Hemolytic anemia due to glutathione peroxidase deficiency
138570	Non-insulin dependent diabetes mellitus, susceptibility to
138700	[Apolipoprotein H deficiency]
138971	Kostmann neutropenia, 202700
138981	Pulmonary alveolar proteinosis, 265120
139250	Isolated growth hormone deficiency, Illig type with absent GH and Kowarski type with bioinactive GH
139350	Epidermolytic hyperkeratosis, 113800
139350	Keratoderma, palmoplantar, nonepidermolytic
142335	Hereditary persistence of fetal hemoglobin, heterocellular, Indian type
142470	[Hereditary persistence of fetal hemoglobin, heterocellular]
142857	Pemphigoid, susceptibility to
142858	Beryllium disease, chronic, susceptibility to
143890	Hypercholesterolemia, familial
145001	Hyperparathyroidism-jaw tumor syndrome
145260	Pseudohypoaldosteronism, type II
145981	Hypocalciuric hypercalcemia, type II
146150	Hypomelanosis of Ito
146150	Hypomelanosis of Ito
146760	[IgG receptor I, phagocytic, familial deficiency of]
146790	Lupus nephritis, susceptibility to
147050	Atopy
147061	Allergy and asthma susceptibility
147141	Leukemia, acute lymphoblastic
147200	[Kappa light chain deficiency]
147575	Myelodysplastic syndrome, preleukemic
147575	Myelogenous leukemia, acute
147575	Macrocytic anemia refractory, of 5q- syndrome, 153550
147670	Rabson-Mendenhall syndrome
147670	Diabetes mellitus, insulin-resistant, with acanthosis nigricans
147670	Leprechaunism
147781	Atopy, susceptibility to
148040	Epidermolysis bullosa simplex, Koebner, Dowling-Meara, and Weber-Cockayne types, 131900, 131760, 131800
148041	Pachyonychia congenita, Jadassohn-Lewandowsky type, 167200
148043	Meesmann corneal dystrophy, 122100
148065	White sponge nevus, 193900
148070	Liver disease, susceptibility to, from hepatotoxins or viruses
148080	Epidermolytic hyperkeratosis, 113800
148370	Keratolytic winter erythema

148500	Tylosis with esophageal cancer
150200	[Placental lactogen deficiency]
150210	Lactoferrin-deficient neutrophils, 245480
150270	Laryngeal adductor paralysis
150292	Epidermolysis bullosa, Herlitz junctional type, 226700
151385	Leukemia, acute myeloid
151440	Leukemia, T-cell acute lymphoblastoid
151670	Hepatic lipase deficiency
152427	Long QT syndrome-2
152445	Vohwinkel syndrome, 124500
152445	Erythrokeratoderma, progressive symmetric, 602036
152760	Hypogonadotropic hypogonadism due to GNRH deficiency, 227200
152790	Precocious puberty, male, 176410
152790	Leydig cell hypoplasia
153454	Ehlers-Danlos syndrome, type VI, 225400
153455	Cutis laxa, recessive, type I, 219100
153700	Macular dystrophy, vitelliform type
153900	Stargardt disease-2
154275	Malignant hyperthermia susceptibility 2
154276	Malignant hyperthermia susceptibility 3
154545	Chronic infections, due to opsonin defect
154705	Marfan syndrome, type II
156225	Muscular dystrophy, congenital merosin-deficient
156600	Microcoria, congenital
157170	Holoprosencephaly-2
157640	PEO with mitochondrial DNA deletions, type 1
159000	Muscular dystrophy, limb-girdle, type 1A
159001	Muscular dystrophy, limb-girdle, type 1B
159440	Charcot-Marie-Tooth neuropathy-1B, 118200
159440	Dejerine-Sottas disease, myelin P-related, 145900
159440	Hypomyelination, congenital
160900	Myotonic dystrophy
161015	Mitochondrial complex I deficiency, 252010
162100	Neuralgic amyotrophy with predilection for brachial plexus
162400	Neuropathy, hereditary sensory and autonomic, type 1
163729	Hypertension, pregnancy-induced
164009	Leukemia, acute promyelocytic, NUMA/RARA type
164200	Oculodentodigital dysplasia
164200	Syndactyly, type III, 186100
164731	Ovarian carcinoma, 167000
164761	Multiple endocrine neoplasia IIA, 171400
164761	Multiple endocrine neoplasia IIB, 162300
164761	Hirschsprung disease, 142623
164761	Medullary thyroid carcinoma, 155240
164860	Renal cell carcinoma, papillary, familial and sporadic
164953	Liposarcoma

166800	Otosclerosis
167250	Paget disease of bone
167410	Rhabdomyosarcoma, alveolar, 268220
168360	Paraneoplastic sensory neuropathy
168461	Multiple myeloma, 254250
168461	Parathyroid adenomatosis 1
168461	Centrocytic lymphoma
168468	Metaphyseal chondrodysplasia, Murk Jansen type, 156400
168470	Humoral hypercalcemia of malignancy
169600	Hailey-Hailey disease
170261	Bare lymphocyte syndrome, type I, due to TAP2 deficiency
170500	Myotonia congenita, atypical acetazolamide-responsive
170500	Paramyotonia congenita, 168300
170500	Hyperkalemic periodic paralysis
170650	Periodontitis, juvenile
171190	Hypertension, essential, 145500
171760	Hypophosphatasia, adult, 146300
171760	Hypophosphatasia, infantile, 241500
171860	Hemolytic anemia due to phosphofructokinase deficiency
172400	Hemolytic anemia due to glucosephosphate isomerase deficiency
172400	Hydrops fetalis, one form
172411	Colorectal cancer, resistance to
172471	Glycogenosis, hepatic, autosomal
172490	Phosphorylase kinase deficiency of liver and muscle, 261750
173360	Thrombophilia due to excessive plasminogen activator inhibitor
173360	Hemorrhagic diathesis due to PAI1 deficiency
173610	Platelet alpha/delta storage pool deficiency
173850	Polio, susceptibility to
174000	Medullary cystic kidney disease, AD
174900	Polyposis, juvenile intestinal
176100	Porphyria cutanea tarda
176100	Porphyria, hepatoerythropoietic
176450	Sacral agenesis-1
176960	Pituitary tumor, invasive
177900	Psoriasis susceptibility-1
178300	Ptosis, hereditary congenital, 1
178640	Pulmonary alveolar proteinosis, congenital, 265120
179095	Male infertility
179450	Ragweed sensitivity
179605	Retinitis pigmentosa, digenic
179605	Retinitis pigmentosa-7, peripherin-related
179605	Retinitis punctata albescens
179605	Butterfly dystrophy, retinal
179605	Macular dystrophy
179755	Renal cell carcinoma, papillary, 1
180069	Retinal dystrophy, autosomal recessive, childhood-onset

180069	Retinitis pigmentosa-20
180069	Leber congenital amaurosis-2, 204100
180090	Retinitis pigmentosa, autosomal recessive
180100	Retinitis pigmentosa-1
180105	Retinitis pigmentosa-10
180200	Osteosarcoma, 259500
180200	Pinealoma with bilateral retinoblastoma
180200	Retinoblastoma
180200	Bladder cancer, 109800
180250	Retinol binding protein, deficiency of
180297	Anemia, hemolytic, Rh-null, suppressor type, 268150
180380	Night blindness, congenital stationery, rhodopsin-related
180380	Retinitis pigmentosa, autosomal recessive
180380	Retinitis pigmentosa-4, autosomal dominant
180381	Oguchi disease-2, 258100
180721	Retinitis pigmentosa, digenic
180840	Susceptibility to IDDM
180901	Malignant hyperthermia susceptibility 1, 145600
180901	Central core disease, 117000
181460	Schistosoma mansoni, susceptibility/resistance to
182280	Small-cell cancer of lung
182290	Smith-Magenis syndrome
182380	Glucose/galactose malabsorption
182381	Renal glucosuria, 253100
182452	Lung cancer, small cell
182600	Spastic paraplegia-3A
182601	Spastic paraplegia-4
182860	Pyropoikilocytosis
182860	Spherocytosis, recessive
182860	Elliptocytosis-2
182900	Spherocytosis-2
183600	Split hand/foot malformation, type 1
185000	Stomatocytosis I
185470	Myopathy due to succinate dehydrogenase deficiency
185800	Symphalangism, proximal
186580	Arthrocutaneousveal granulomatosis
186770	Leukemia, T-cell acute lymphocytic
186780	CD3, zeta chain, deficiency
186880	Leukemia/lymphoma, T-cell
186940	[CD4(+)] lymphocyte deficiency]
186940	Lupus erythematosus, susceptibility to
186960	Leukemia/lymphoma, T-cell
187040	Leukemia-1, T-cell acute lymphoblastic
188070	Bleeding disorder due to defective thromboxane A2 receptor
188540	Hypothyroidism, nongoitrous
188550	Thyroid papillary carcinoma

188826	Sorsby fundus dystrophy, 136900
189980	Leukemia, chronic myeloid
190000	Atransferrinemia
190040	Dermatofibrosarcoma protuberans
190040	Giant-cell fibroblastoma
190040	Meningioma, SIS-related
190195	Ichthyosiform erythroderma, congenital, 242100
190195	Ichthyosis, lamellar, autosomal recessive, 242300
190605	Triphalangeal thumb-polysyndactyly syndrome
190685	Down syndrome
191030	Nemaline myopathy-1, 161800
191170	Colorectal cancer, 114500
191170	Li-Fraumeni syndrome
191181	Cervical carcinoma
191315	Insensitivity to pain, congenital, with anhidrosis, 256800
192340	Diabetes insipidus, neurohypophyseal, 125700
192974	Neonatal alloimmune thrombocytopenia
192974	Glycoprotein Ia deficiency
193235	Vitreoretinopathy, neovascular inflammatory
200990	Acrocallosal syndrome
201450	Acyl-CoA dehydrogenase, medium chain, deficiency of
201475	VLCAD deficiency
201910	Adrenal hyperplasia, congenital, due to 21-hydroxylase deficiency
202010	Adrenal hyperplasia, congenital, due to 11-beta-hydroxylase deficiency
202010	Aldosteronism, glucocorticoid-remediable
203310	Ocular albinism, autosomal recessive
203500	Alkaptonuria
203800	Alstrom syndrome
205900	Anemia, Diamond-Blackfan
207750	Hyperlipoproteinemia, type Ib
208250	Jacobs syndrome
209901	Bardet-Biedl syndrome 1
210900	Bloom syndrome
214400	Charcot-Marie-Tooth neuropathy-4A
216900	Achromatopsia
217000	C2 deficiency
217800	Macular corneal dystrophy
218000	Andermann syndrome
218030	Apparent mineralocorticoid excess, hypertension due to
221770	Polycystic lipomembranous osteodysplasia with sclerosing leukencephalopathy
221820	Gliososis, familial progressive subcortical
222100	Diabetes mellitus, insulin-dependent-1
222700	Lysinuric protein intolerance
222800	Hemolytic anemia due to bisphosphoglycerate mutase deficiency
222900	Sucrose intolerance



223900	Dysautonomia, familial
224120	Dyserythropoietic anemia, congenital, type I
226450	Epidermolysis bullosa inversa, junctional
227220	[Eye color, brown]
227500	Factor VII deficiency
227600	Factor X deficiency
227645	Fanconi anemia, type C
227646	Fanconi anemia, type D
229700	Fructose-bisphosphatase deficiency
230000	Fucosidosis
230200	Galactokinase deficiency with cataracts
230350	Galactose epimerase deficiency
230450	Hemolytic anemia due to gamma-glutamylcysteine synthetase deficiency
230800	Gaucher disease
230800	Gaucher disease with cardiovascular calcification
231550	Achalasia-addisonianism-alacrimia syndrome
231670	Glutaricaciduria, type I
232000	Propionicacidemia, type I or pccA type
232050	Propionicacidemia, type II or pccB type
232600	McArdle disease
233100	[Renal glucosuria]
234200	Neurodegeneration with brain iron accumulation
235200	Hemochromatosis
236100	Holoprosencephaly-1
236200	Homocystinuria, B6-responsive and nonresponsive types
236250	Homocystinuria due to MTHFR deficiency
236730	Urofacial syndrome
238970	HHH syndrome
240300	Autoimmune polyglandular disease, type I
243500	Isovalericacidemia
245200	Krabbe disease
246900	Lipoamide dehydrogenase deficiency
248600	Maple syrup urine disease, type Ia
248610	Maple syrup urine disease, type II
248611	Maple syrup urine disease, type Ib
249000	Meckel syndrome
250100	Metachromatic leukodystrophy
250800	Methemoglobinemia, type I
250800	Methemoglobinemia, type II
253250	Mulibrey nanism
253700	Muscular dystrophy, limb-girdle, type 2C
253800	Walker-Warburg syndrome, 236670
253800	Fukuyama type congenital muscular dystrophy
254770	Epilepsy, juvenile myoclonic
255800	Schwartz-Jampel syndrome

256550	Sialidosis, type I
256550	Sialidosis, type II
256700	Neuroblastoma
256731	Ceroid-lipofuscinosis, neuronal-5, variant late infantile
256850	Giant axonal neuropathy-1
258501	3-methylglutaconicaciduria, type III
259700	Osteopetrosis, recessive
259770	Osteoporosis-pseudoglioma syndrome
263200	Polycystic kidney disease, autosomal recessive
264800	Pseudoxanthoma elasticum
266150	Pyruvate carboxylase deficiency
266200	Anemia, hemolytic, due to PK deficiency
266600	Inflammatory bowel disease-1
267750	Knobloch syndrome
268900	[Sarcosinemia]
269920	Salla disease
270200	Sjogren-Larsson syndrome
271245	Spinocerebellar ataxia-8, infantile, with sensory neuropathy
274600	Pendred syndrome
274600	Deafness, autosomal recessive 4
276000	Pancreatitis, hereditary, 167800
276000	Trypsinogen deficiency
276902	Usher syndrome, type 3
276903	Usher syndrome, type 1B
276903	Deafness, autosomal dominant 11, neurosensory, 601317
276903	Deafness, autosomal recessive 2, neurosensory, 600060
277700	Werner syndrome
277900	Wilson disease
278000	Wolman disease
278000	Cholesteryl ester storage disease
278300	Xanthinuria, type I
278700	Xeroderma pigmentosum, group A
278760	Xeroderma pigmentosum, group F
300018	Pseudohermaphroditism, male
300037	Simpson dysmorphia syndrome, 312870
300046	Mental retardation, X-linked 23, nonspecific
300047	Mental retardation, X-linked 20
300062	Mental retardation, X-linked 14
300067	Subcortical laminar heterotopia, X-linked dominant
300067	Lissencephaly, X-linked
300071	Night blindness, congenital stationary, type 2
300075	Coffin-Lowry syndrome, 303600
300076	Wood neuroimmunologic syndrome
300077	Mental retardation, X-linked 29
300110	Night blindness, congenital stationary, X-linked incomplete, 300071
300121	Subcortical laminal heteropia, X-linked, 300067

300121	Lissencephaly, X-linked, 300067
300123	Mental retardation with isolated growth hormone deficiency
300200	Adrenal hypoplasia, congenital, with hypogonadotropic hypogonadism
300600	Ocular albinism, Forsius-Eriksson type
301000	Thrombocytopenia, X-linked, 313900
301000	Wiskott-Aldrich syndrome
301200	Amelogenesis imperfecta
301201	Amelogenesis imperfecta-3, hypoplastic type
301220	Partington syndrome II
301830	Arthrogryposis, X-linked (spinal muscular atrophy, infantile, X-linked)
301835	Arts syndrome
301845	Bazex syndrome
301900	Borjeson-Forssman-Lehmann syndrome
302350	Nance-Horan syndrome
303100	Choroideremia
304020	Cone dystrophy, progressive X-linked, 1
304340	Mental retardation, X-linked, syndromic-5, with Dandy-Walker malformation, basal ganglia disease, and seizures
305450	FG syndrome
306000	Glycogenosis, X-linked hepatic, type I
306000	Glycogenosis, X-linked hepatic, type II
306100	Gonadal dysgenesis, XY female type
307030	Glycerol kinase deficiency
307150	Hypertrichosis, congenital generalized
307700	Hypoparathyroidism, X-linked
307800	Hypophosphatemia, hereditary
308000	HPRT-related gout
308000	Lesch-Nyhan syndrome
308230	Immunodeficiency, X-linked, with hyper-IgM
308240	Lymphoproliferative syndrome, X-linked
309470	Mental retardation, X-linked, syndromic-3, with spastic diplegia
309500	Renpenning syndrome-1
309510	Mental retardation, X-linked, syndromic-1, with dystonic movements, ataxia, and seizures
309555	Gustavson syndrome
309585	Mental retardation, X-linked, syndromic-6, with gynecomastia and obesity
309605	Mental retardation, X-linked, syndromic-4, with congenital contractures and low fingertip arches
309610	Mental retardation, X-linked, syndromic-2, with dysmorphism and cerebral atrophy
309850	Brunner syndrome
310490	Cowchock syndrome
310500	Night blindness, congenital stationary, type 1
310600	Norrie disease

310600	Exudative vitreoretinopathy, X-linked, 305390
311050	Optic atrophy, X-linked
311770	Paroxysmal nocturnal hemoglobinuria
311850	Phosphoribosyl pyrophosphate synthetase-related gout
312000	Panhypopituitarism, X-linked
312040	N syndrome, 310465
312060	Properdin deficiency, X-linked
312170	Pyruvate dehydrogenase deficiency
312600	Retinitis pigmentosa-2
312612	Retinitis pigmentosa-6
312700	Retinoschisis
313350	Split hand/foot malformation, type 2
313400	Spondyloepiphyseal dysplasia tarda
313850	Thoracoabdominal syndrome
314580	Wieacker-Wolff syndrome
600040	Colorectal cancer
600045	Xeroderma pigmentosum, group E, subtype 2
600065	Leukocyte adhesion deficiency, 116920
600095	Split hand/foot malformation, type 3
600101	Deafness, autosomal dominant 2
600105	Retinitis pigmentosa-12, autosomal recessive
600163	Long QT syndrome-3
600184	Carnitine acetyltransferase deficiency
600194	Ichthyosis bullosa of Siemens, 146800
600202	Dyslexia, specific, 2
600231	Palmoplantar keratoderma, Bothnia type
600234	HMG-CoA synthase-2 deficiency
600243	Temperature-sensitive apoptosis
600261	Ehlers-Danlos-like syndrome
600276	Cerebral arteriopathy with subcortical infarcts and leukoencephalopathy, 125310
600309	Atrioventricular canal defect-1
600318	Diabetes mellitus, insulin-dependent, 3
600319	Diabetes mellitus, insulin-dependent, 4
600359	Bartter syndrome, type 2
600364	Cone dystrophy-3, 602093
600374	Bardet-Biedl syndrome 4
600510	Pigment dispersion syndrome
600512	Epilepsy, partial
600525	Trichodontoosseous syndrome, 190320
600528	CPT deficiency, hepatic, type I, 255120
600536	Myopathy, congenital
600617	Lipoid adrenal hyperplasia, 201710
600631	Enuresis, nocturnal, 1
600650	Myopathy due to CPT II deficiency, 255110
600650	CPT deficiency, hepatic, type II, 600649

600652	Deafness, autosomal dominant 4
600722	Ceroid lipofuscinosis, neuronal, variant juvenile type, with granular osmiophilic deposits
600722	Ceroid lipofuscinosis, neuronal-1, infantile, 256730
600725	Holoprosencephaly-3, 142945
600757	Orofacial cleft-3
600759	Alzheimer disease-4
600760	Pseudohypoaldosteronism, type I, 264350
600760	Liddle syndrome, 177200
600761	Pseudohypoaldosteronism, type I, 264350
600761	Liddle syndrome, 177200
600807	Bronchial asthma
600808	Enuresis, nocturnal, 2
600839	Bartter syndrome, 241200
600852	Retinitis pigmentosa-17
600882	Charcot-Marie-Tooth neuropathy-2B
600897	Cataract, zonular pulverulent-1, 116200
600918	Cystinuria, type III
600923	Porphyria variegata, 176200
600956	Persistent Mullerian duct syndrome, type II, 261550
600957	Persistent Mullerian duct syndrome, type I, 261550
600968	Gitelman syndrome, 263800
600975	Glaucoma 3, primary infantile, B
600995	Nephrotic syndrome, idiopathic, steroid-resistant
601071	Deafness, autosomal recessive 9
601072	Deafness, autosomal recessive 8
601090	Iridogoniodysgenesis, 601631
601097	Neuropathy, recurrent, with pressure palsies, 162500
601097	Charcot-Marie-Tooth neuropathy-1A, 118220
601097	Dejerine-Sottas disease, PMP22 related, 145900
601105	Pycnodysostosis, 265800
601107	Dubin-Johnson syndrome, 237500
601130	Tolbutamide poor metabolizer
601145	Epilepsy, progressive myoclonic 1, 254800
601154	Cardiomyopathy, dilated, 1E
601199	Neonatal hyperparathyroidism, 239200
601199	Hypocalcemia, autosomal dominant, 601198
601199	Hypocalciuric hypercalcemia, type I, 145980
601208	Insulin-dependent diabetes mellitus-11
601238	Cerebellar ataxia, Cayman type
601284	Hereditary hemorrhagic telangiectasia-2, 600376
601309	Basal cell carcinoma, sporadic
601309	Basal cell nevus syndrome, 109400
601316	Deafness, autosomal dominant 10
601386	Deafness, autosomal recessive 12
601410	Diabetes mellitus, transient neonatal

601412	Deafness, autosomal dominant 7
601414	Retinitis pigmentosa-18
601471	Moebius syndrome-2
601493	Cardiomyopathy, dilated 1C
601498	Peroxisomal biogenesis disorder, complementation group 4
601518	Prostate cancer, hereditary, 1, 176807
601596	Charcot-Marie-Tooth neuropathy, demyelinating
601623	Angelman syndrome
601652	Glaucoma 1A, primary open angle, juvenile-onset, 137750
601666	Insulin-dependent diabetes mellitus-15
601676	Acute insulin response
601682	Glaucoma 1C, primary open angle
601690	Platelet-activating factor acetylhydrolase deficiency
601691	Retinitis pigmentosa-19, 601718
601691	Stargardt disease-1, 248200
601691	Cone-rod dystrophy 3
601691	Fundus flavimaculatus with macular dystrophy, 248200
601692	Reis-Bucklers corneal dystrophy
601692	Corneal dystrophy, Avellino type
601692	Corneal dystrophy, Groenouw type I, 121900
601692	Corneal dystrophy, lattice type I, 122200
601718	Retinitis pigmentosa-19
601757	Rhizomelic chondrodysplasia punctata, type 1, 215100
601769	Osteoporosis, involutional
601769	Rickets, vitamin D-resistant, 277440
601771	Glaucoma 3A, primary infantile, 231300
601780	Ceroid-lipofuscinosis, neuronal-6, variant late infantile
601800	[Hair color, brown]
601841	Protein C inhibitor deficiency
601843	Hypothyroidism, congenital, 274400
601844	Pseudohypoaldosteronism type II
601846	Muscular dystrophy with rimmed vacuoles
601863	Bare lymphocyte syndrome, complementation group C
601868	Deafness, autosomal dominant 13
601884	[High bone mass]
601885	Cataract, zonular pulverulent-2
601889	Lymphoma, diffuse large cell
601928	Monilethrix, 158000
602014	Hypomagnesemia with secondary hypocalcemia
602028	Multiple myeloma
602066	Convulsions, infantile and paroxysmal choreoathetosis
602081	Speech-language disorder-1
602082	Corneal dystrophy, Thiel-Behnke type
602085	Postaxial polydactyly, type A2
602088	Nephronophthisis, infantile
602089	Hemangioma, capillary, hereditary

602094	Lipodystrophy, familial partial
602096	Alzheimer disease-5
602099	Amyotrophic lateral sclerosis-5
602116	Glioma
602117	Prader-Willi syndrome
602121	Deafness, autosomal dominant nonsyndromic sensorineural, 1, 124900
602134	Tremor, familial essential, 2
602136	Refsum disease, infantile, 266510
602136	Zellweger syndrome-1, 214100
602136	Adrenoleukodystrophy, neonatal, 202370
602153	Monilethrix, 158000
602216	Peutz-Jeghers syndrome, 175200
602221	Stem-cell leukemia/lymphoma syndrome
602225	Cone-rod retinal dystrophy-2, 120970
602225	Leber congenital amaurosis, type III
602279	Oculopharyngeal muscular dystrophy, 164300
602279	Oculopharyngeal muscular dystrophy, autosomal recessive, 257950
602280	Retinitis pigmentosa-14, 600132
602404	Parkinson disease, type 3
602447	Coronary artery disease, susceptibility to
602460	Deafness, autosomal dominant 15, 602459
602475	Ossification of posterior longitudinal ligament of spine
602476	Febrile convulsions, familial, 1
602477	Febrile convulsions, familial, 2
602491	Hyperlipidemia, familial combined, 1
602522	Bartter syndrome, infantile, with sensorineural deafness
602568	Homocystinuria-megaloblastic anemia, cbl E type, 236270
602574	Deafness, autosomal dominant 12, 601842
602574	Deafness, autosomal dominant 8, 601543
602575	Nail-patella syndrome with open-angle glaucoma, 137750
602575	Nail-patella syndrome, 161200
602666	Deafness, autosomal recessive 3, 600316
602667	Nijmegen breakage syndrome, 251260
602716	Nephrosis-1, congenital, Finnish type, 256300
602771	Muscular dystrophy, congenital, with early spine rigidity
602772	Retinitis pigmentosa-24

*Polynucleotide and Polypeptide Variants*

[0087] The present invention is directed to variants of the polynucleotide sequence disclosed in SEQ ID NO:X or the complementary strand thereto, nucleotide sequences encoding the polypeptide of SEQ ID NO:Y, the nucleotide sequence of SEQ ID NO:X encoding the polypeptide sequence as defined in column 7 of Table 1, nucleotide sequences encoding the polypeptide as defined in column 7 of Table 1, the nucleotide sequence as defined in columns 8 and 9 of Table 2, nucleotide sequences encoding the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2, the cDNA sequence contained in Clone ID NO:Z, and/or nucleotide sequences encoding the polypeptide encoded by the cDNA sequence contained in Clone ID NO:Z.

[0088] The present invention also encompasses variants of the polypeptide sequence disclosed in SEQ ID NO:Y, the polypeptide sequence as defined in column 7 of Table 1, a polypeptide sequence encoded by the polynucleotide sequence in SEQ ID NO:X, a polypeptide sequence encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2, a polypeptide sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X, and/or a polypeptide sequence encoded by the cDNA sequence contained in Clone ID NO:Z.

[0089] "Variant" refers to a polynucleotide or polypeptide differing from the polynucleotide or polypeptide of the present invention, but retaining essential properties thereof. Generally, variants are overall closely similar, and, in many regions, identical to the polynucleotide or polypeptide of the present invention.

[0090] Thus, one aspect of the invention provides an isolated nucleic acid molecule comprising, or alternatively consisting of, a polynucleotide having a nucleotide sequence selected from the group consisting of: (a) a nucleotide sequence described in SEQ ID NO:X or contained in the cDNA sequence of Clone ID NO:Z; (b) a nucleotide sequence in SEQ ID NO:X or the cDNA in Clone ID NO:Z which encodes the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; (c) a nucleotide sequence in SEQ ID NO:X or the cDNA in Clone ID NO:Z which encodes a mature polypeptide; (d) a nucleotide sequence in SEQ ID NO:X or the cDNA sequence of Clone ID NO:Z, which encodes a biologically active fragment of a polypeptide; (e) a nucleotide sequence in SEQ ID NO:X or the cDNA sequence of Clone ID NO:Z, which



encodes an antigenic fragment of a polypeptide; (f) a nucleotide sequence encoding a polypeptide comprising the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; (g) a nucleotide sequence encoding a mature polypeptide of the amino acid sequence of SEQ ID NO:Y or the amino acid sequence encoded by the cDNA in Clone ID NO:Z; (h) a nucleotide sequence encoding a biologically active fragment of a polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; (i) a nucleotide sequence encoding an antigenic fragment of a polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; and (j) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), (h), or (i) above.

[0091] The present invention is also directed to nucleic acid molecules which comprise, or alternatively consist of, a nucleotide sequence which is at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100%, identical to, for example, any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), (h), (i), or (j) above, the nucleotide coding sequence in SEQ ID NO:X or the complementary strand thereto, the nucleotide coding sequence of the cDNA contained in Clone ID NO:Z or the complementary strand thereto, a nucleotide sequence encoding the polypeptide of SEQ ID NO:Y, a nucleotide sequence encoding a polypeptide sequence encoded by the nucleotide sequence in SEQ ID NO:X, a polypeptide sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X, a nucleotide sequence encoding the polypeptide encoded by the cDNA contained in Clone ID NO:Z, the nucleotide coding sequence in SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto, a nucleotide sequence encoding the polypeptide encoded by the nucleotide sequence in SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto, the nucleotide sequence in SEQ ID NO:X encoding the polypeptide sequence as defined in column 7 of Table 1 or the complementary strand thereto, nucleotide sequences encoding the polypeptide as defined in column 7 of Table 1 or the complementary strand thereto, and/or polynucleotide fragments of any of these nucleic acid molecules (e.g., those fragments described herein). Polynucleotides which hybridize to the complement of these nucleic acid molecules under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides and nucleic acids.

[0092] In a preferred embodiment, the invention encompasses nucleic acid molecules which comprise, or alternatively, consist of a polynucleotide which hybridizes under stringent hybridization conditions, or alternatively, under lower stringency conditions, to a polynucleotide in (a), (b), (c), (d), (e), (f), (g), (h), or (i), above, as are polypeptides encoded by these polynucleotides. In another preferred embodiment, polynucleotides which hybridize to the complement of these nucleic acid molecules under stringent hybridization conditions, or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

[0093] In another embodiment, the invention provides a purified protein comprising, or alternatively consisting of, a polypeptide having an amino acid sequence selected from the group consisting of: (a) the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; (b) the amino acid sequence of a mature form of a polypeptide having the amino acid sequence of SEQ ID NO:Y or the amino acid sequence encoded by the cDNA in Clone ID NO:Z; (c) the amino acid sequence of a biologically active fragment of a polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z; and (d) the amino acid sequence of an antigenic fragment of a polypeptide having the complete amino acid sequence of SEQ ID NO:Y or the complete amino acid sequence encoded by the cDNA in Clone ID NO:Z.

[0094] The present invention is also directed to proteins which comprise, or alternatively consist of, an amino acid sequence which is at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100%, identical to, for example, any of the amino acid sequences in (a), (b), (c), or (d), above, the amino acid sequence shown in SEQ ID NO:Y, the amino acid sequence encoded by the cDNA contained in Clone ID NO:Z, the amino acid sequence of the polypeptide encoded by the nucleotide sequence in SEQ ID NO:X as defined in columns 8 and 9 of Table 2, the amino acid sequence as defined in column 7 of Table 1, an amino acid sequence encoded by the nucleotide sequence in SEQ ID NO:X, and an amino acid sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X. Fragments of these polypeptides are also provided (e.g., those fragments described herein). Further proteins encoded by polynucleotides which hybridize to the complement of the nucleic acid molecules encoding these amino acid sequences under stringent hybridization conditions or

alternatively, under lower stringency conditions, are also encompassed by the invention, as are the polynucleotides encoding these proteins.

[0095] By a nucleic acid having a nucleotide sequence at least, for example, 95% "identical" to a reference nucleotide sequence of the present invention, it is intended that the nucleotide sequence of the nucleic acid is identical to the reference sequence except that the nucleotide sequence may include up to five point mutations per each 100 nucleotides of the reference nucleotide sequence encoding the polypeptide. In other words, to obtain a nucleic acid having a nucleotide sequence at least 95% identical to a reference nucleotide sequence, up to 5% of the nucleotides in the reference sequence may be deleted or substituted with another nucleotide, or a number of nucleotides up to 5% of the total nucleotides in the reference sequence may be inserted into the reference sequence. The query sequence may be an entire sequence referred to in Table 1 or 2 as the ORF (open reading frame), or any fragment specified as described herein.

[0096] As a practical matter, whether any particular nucleic acid molecule or polypeptide is at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to a nucleotide sequence of the present invention can be determined conventionally using known computer programs. A preferred method for determining the best overall match between a query sequence (a sequence of the present invention) and a subject sequence, also referred to as a global sequence alignment, can be determined using the FASTDB computer program based on the algorithm of Brutlag et al. (Comp. App. Biosci. 6:237-245 (1990)). In a sequence alignment the query and subject sequences are both DNA sequences. An RNA sequence can be compared by converting U's to T's. The result of said global sequence alignment is expressed as percent identity. Preferred parameters used in a FASTDB alignment of DNA sequences to calculate percent identity are: Matrix=Unitary, k-tuple=4, Mismatch Penalty=1, Joining Penalty=30, Randomization Group Length=0, Cutoff Score=1, Gap Penalty=5, Gap Size Penalty 0.05, Window Size=500 or the length of the subject nucleotide sequence, whichever is shorter.

[0097] If the subject sequence is shorter than the query sequence because of 5' or 3' deletions, not because of internal deletions, a manual correction must be made to the results. This is because the FASTDB program does not account for 5' and 3' truncations of the subject sequence when calculating percent identity. For subject sequences truncated at the 5' or 3' ends, relative to the query sequence, the percent identity is corrected by calculating the

number of bases of the query sequence that are 5' and 3' of the subject sequence, which are not matched/aligned, as a percent of the total bases of the query sequence. Whether a nucleotide is matched/aligned is determined by results of the FASTDB sequence alignment. This percentage is then subtracted from the percent identity, calculated by the above FASTDB program using the specified parameters, to arrive at a final percent identity score. This corrected score is what is used for the purposes of the present invention. Only bases outside the 5' and 3' bases of the subject sequence, as displayed by the FASTDB alignment, which are not matched/aligned with the query sequence, are calculated for the purposes of manually adjusting the percent identity score.

[0098] For example, a 90 base subject sequence is aligned to a 100 base query sequence to determine percent identity. The deletions occur at the 5' end of the subject sequence and therefore, the FASTDB alignment does not show a matched/alignment of the first 10 bases at 5' end. The 10 unpaired bases represent 10% of the sequence (number of bases at the 5' and 3' ends not matched/total number of bases in the query sequence) so 10% is subtracted from the percent identity score calculated by the FASTDB program. If the remaining 90 bases were perfectly matched the final percent identity would be 90%. In another example, a 90 base subject sequence is compared with a 100 base query sequence. This time the deletions are internal deletions so that there are no bases on the 5' or 3' of the subject sequence which are not matched/aligned with the query. In this case the percent identity calculated by FASTDB is not manually corrected. Once again, only bases 5' and 3' of the subject sequence which are not matched/aligned with the query sequence are manually corrected for. No other manual corrections are to be made for the purposes of the present invention.

[0099] By a polypeptide having an amino acid sequence at least, for example, 95% "identical" to a query amino acid sequence of the present invention, it is intended that the amino acid sequence of the subject polypeptide is identical to the query sequence except that the subject polypeptide sequence may include up to five amino acid alterations per each 100 amino acids of the query amino acid sequence. In other words, to obtain a polypeptide having an amino acid sequence at least 95% identical to a query amino acid sequence, up to 5% of the amino acid residues in the subject sequence may be inserted, deleted, (indels) or substituted with another amino acid. These alterations of the reference sequence may occur at the amino or carboxy terminal positions of the reference amino acid sequence or anywhere between those terminal positions, interspersed either individually among residues in the

reference sequence or in one or more contiguous groups within the reference sequence.

[0100] As a practical matter, whether any particular polypeptide is at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to, for instance, the amino acid sequence of a polypeptide referred to in Table 1 (e.g., the amino acid sequence identified in column 6) or Table 2 (e.g., the amino acid sequence of the polypeptide encoded by the polynucleotide sequence defined in columns 8 and 9 of Table 2) or a fragment thereof, the amino acid sequence of the polypeptide encoded by the nucleotide sequence in SEQ ID NO:X or a fragment thereof, or the amino acid sequence of the polypeptide encoded by cDNA contained in Clone ID NO:Z, or a fragment thereof, can be determined conventionally using known computer programs. A preferred method for determining the best overall match between a query sequence (a sequence of the present invention) and a subject sequence, also referred to as a global sequence alignment, can be determined using the FASTDB computer program based on the algorithm of Brutlag et al. (Comp. App. Biosci.6:237-245 (1990)). In a sequence alignment the query and subject sequences are either both nucleotide sequences or both amino acid sequences. The result of said global sequence alignment is expressed as percent identity. Preferred parameters used in a FASTDB amino acid alignment are: Matrix=PAM 0, k-tuple=2, Mismatch Penalty=1, Joining Penalty=20, Randomization Group Length=0, Cutoff Score=1, Window Size=sequence length, Gap Penalty=5, Gap Size Penalty=0.05, Window Size=500 or the length of the subject amino acid sequence, whichever is shorter.

[0101] If the subject sequence is shorter than the query sequence due to N- or C-terminal deletions, not because of internal deletions, a manual correction must be made to the results. This is because the FASTDB program does not account for N- and C-terminal truncations of the subject sequence when calculating global percent identity. For subject sequences truncated at the N- and C-termini, relative to the query sequence, the percent identity is corrected by calculating the number of residues of the query sequence that are N- and C-terminal of the subject sequence, which are not matched/aligned with a corresponding subject residue, as a percent of the total bases of the query sequence. Whether a residue is matched/aligned is determined by results of the FASTDB sequence alignment. This percentage is then subtracted from the percent identity, calculated by the above FASTDB program using the specified parameters, to arrive at a final percent identity score. This final percent identity score is what is used for the purposes of the present invention. Only residues

to the N- and C-termini of the subject sequence, which are not matched/aligned with the query sequence, are considered for the purposes of manually adjusting the percent identity score. That is, only query residue positions outside the farthest N- and C- terminal residues of the subject sequence.

[0102] For example, a 90 amino acid residue subject sequence is aligned with a 100 residue query sequence to determine percent identity. The deletion occurs at the N-terminus of the subject sequence and therefore, the FASTDB alignment does not show a matching/alignment of the first 10 residues at the N-terminus. The 10 unpaired residues represent 10% of the sequence (number of residues at the N- and C- termini not matched/total number of residues in the query sequence) so 10% is subtracted from the percent identity score calculated by the FASTDB program. If the remaining 90 residues were perfectly matched the final percent identity would be 90%. In another example, a 90 residue subject sequence is compared with a 100 residue query sequence. This time the deletions are internal deletions so there are no residues at the N- or C-termini of the subject sequence which are not matched/aligned with the query. In this case the percent identity calculated by FASTDB is not manually corrected. Once again, only residue positions outside the N- and C-terminal ends of the subject sequence, as displayed in the FASTDB alignment, which are not matched/aligned with the query sequence are manually corrected for. No other manual corrections are to be made for the purposes of the present invention.

[0103] The polynucleotide variants of the invention may contain alterations in the coding regions, non-coding regions, or both. Especially preferred are polynucleotide variants containing alterations which produce silent substitutions, additions, or deletions, but do not alter the properties or activities of the encoded polypeptide. Nucleotide variants produced by silent substitutions due to the degeneracy of the genetic code are preferred. Moreover, polypeptide variants in which less than 50, less than 40, less than 30, less than 20, less than 10, or 5-50, 5-25, 5-10, 1-5, or 1-2 amino acids are substituted, deleted, or added in any combination are also preferred. Polynucleotide variants can be produced for a variety of reasons, e.g., to optimize codon expression for a particular host (change codons in the human mRNA to those preferred by a bacterial host such as *E. coli*).

[0104] Naturally occurring variants are called "allelic variants," and refer to one of several alternate forms of a gene occupying a given locus on a chromosome of an organism. (Genes II, Lewin, B., ed., John Wiley & Sons, New York (1985)). These allelic variants can vary at

either the polynucleotide and/or polypeptide level and are included in the present invention. Alternatively, non-naturally occurring variants may be produced by mutagenesis techniques or by direct synthesis.

[0105] Using known methods of protein engineering and recombinant DNA technology, variants may be generated to improve or alter the characteristics of the polypeptides of the present invention. For instance, one or more amino acids can be deleted from the N-terminus or C-terminus of the polypeptide of the present invention without substantial loss of biological function. As an example, Ron et al. (J. Biol. Chem. 268: 2984-2988 (1993)) reported variant KGF proteins having heparin binding activity even after deleting 3, 8, or 27 amino-terminal amino acid residues. Similarly, Interferon gamma exhibited up to ten times higher activity after deleting 8-10 amino acid residues from the carboxy terminus of this protein. (Dobeli et al., J. Biotechnology 7:199-216 (1988).)

[0106] Moreover, ample evidence demonstrates that variants often retain a biological activity similar to that of the naturally occurring protein. For example, Gayle and coworkers (J. Biol. Chem. 268:22105-22111 (1993)) conducted extensive mutational analysis of human cytokine IL-1a. They used random mutagenesis to generate over 3,500 individual IL-1a mutants that averaged 2.5 amino acid changes per variant over the entire length of the molecule. Multiple mutations were examined at every possible amino acid position. The investigators found that "[m]ost of the molecule could be altered with little effect on either [binding or biological activity]." In fact, only 23 unique amino acid sequences, out of more than 3,500 nucleotide sequences examined, produced a protein that significantly differed in activity from wild-type.

[0107] Furthermore, even if deleting one or more amino acids from the N-terminus or C-terminus of a polypeptide results in modification or loss of one or more biological functions, other biological activities may still be retained. For example, the ability of a deletion variant to induce and/or to bind antibodies which recognize the secreted form will likely be retained when less than the majority of the residues of the secreted form are removed from the N-terminus or C-terminus. Whether a particular polypeptide lacking N- or C-terminal residues of a protein retains such immunogenic activities can readily be determined by routine methods described herein and otherwise known in the art.

[0108] Thus, the invention further includes polypeptide variants which show a functional activity (e.g., biological activity) of the polypeptides of the invention. Such variants include

deletions, insertions, inversions, repeats, and substitutions selected according to general rules known in the art so as have little effect on activity.

[0109] The present application is directed to nucleic acid molecules at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100% identical to the nucleic acid sequences disclosed herein, (e.g., encoding a polypeptide having the amino acid sequence of an N and/or C terminal deletion), irrespective of whether they encode a polypeptide having functional activity. This is because even where a particular nucleic acid molecule does not encode a polypeptide having functional activity, one of skill in the art would still know how to use the nucleic acid molecule, for instance, as a hybridization probe or a polymerase chain reaction (PCR) primer. Uses of the nucleic acid molecules of the present invention that do not encode a polypeptide having functional activity include, inter alia, (1) isolating a gene or allelic or splice variants thereof in a cDNA library; (2) *in situ* hybridization (e.g., "FISH") to metaphase chromosomal spreads to provide precise chromosomal location of the gene, as described in Verma et al., *Human Chromosomes: A Manual of Basic Techniques*, Pergamon Press, New York (1988); (3) Northern Blot analysis for detecting mRNA expression in specific tissues (e.g., normal or diseased tissues); and (4) *in situ* hybridization (e.g., histochemistry) for detecting mRNA expression in specific tissues (e.g., normal or diseased tissues).

[0110] Preferred, however, are nucleic acid molecules having sequences at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100% identical to the nucleic acid sequences disclosed herein, which do, in fact, encode a polypeptide having functional activity. By a polypeptide having "functional activity" is meant, a polypeptide capable of displaying one or more known functional activities associated with a full-length (complete) protein of the invention. Such functional activities include, but are not limited to, biological activity, antigenicity [ability to bind (or compete with a polypeptide of the invention for binding) to an anti-polypeptide of the invention antibody], immunogenicity (ability to generate antibody which binds to a specific polypeptide of the invention), ability to form multimers with polypeptides of the invention, and ability to bind to a receptor or ligand for a polypeptide of the invention.

[0111] The functional activity of the polypeptides, and fragments, variants and derivatives of the invention, can be assayed by various methods.



[0112] For example, in one embodiment where one is assaying for the ability to bind or compete with a full-length polypeptide of the present invention for binding to an anti-polypeptide antibody, various immunoassays known in the art can be used, including but not limited to, competitive and non-competitive assay systems using techniques such as radioimmunoassays, ELISA (enzyme linked immunosorbent assay), "sandwich" immunoassays, immunoradiometric assays, gel diffusion precipitation reactions, immunodiffusion assays, in situ immunoassays (using colloidal gold, enzyme or radioisotope labels, for example), western blots, precipitation reactions, agglutination assays (e.g., gel agglutination assays, hemagglutination assays), complement fixation assays, immunofluorescence assays, protein A assays, and immunoelectrophoresis assays, etc. In one embodiment, antibody binding is detected by detecting a label on the primary antibody. In another embodiment, the primary antibody is detected by detecting binding of a secondary antibody or reagent to the primary antibody. In a further embodiment, the secondary antibody is labeled. Many means are known in the art for detecting binding in an immunoassay and are within the scope of the present invention.

[0113] In another embodiment, where a ligand is identified, or the ability of a polypeptide fragment, variant or derivative of the invention to multimerize is being evaluated, binding can be assayed, e.g., by means well-known in the art, such as, for example, reducing and non-reducing gel chromatography, protein affinity chromatography, and affinity blotting. See generally, Phizicky et al., Microbiol. Rev. 59:94-123 (1995). In another embodiment, the ability of physiological correlates of a polypeptide of the present invention to bind to a substrate(s) of the polypeptide of the invention can be routinely assayed using techniques known in the art.

[0114] In addition, assays described herein (see Examples) and otherwise known in the art may routinely be applied to measure the ability of polypeptides of the present invention and fragments, variants and derivatives thereof to elicit polypeptide related biological activity (either *in vitro* or *in vivo*). Other methods will be known to the skilled artisan and are within the scope of the invention.

[0115] Of course, due to the degeneracy of the genetic code, one of ordinary skill in the art will immediately recognize that a large number of the nucleic acid molecules having a sequence at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or 100% identical to, for example, the nucleic acid sequence of the cDNA contained in Clone ID NO:Z, the nucleic

acid sequence referred to in Table 1 (SEQ ID NO:X), the nucleic acid sequence disclosed in Table 2 (e.g., the nucleic acid sequence delineated in columns 8 and 9) or fragments thereof, will encode polypeptides "having functional activity." In fact, since degenerate variants of any of these nucleotide sequences all encode the same polypeptide, in many instances, this will be clear to the skilled artisan even without performing the above described comparison assay. It will be further recognized in the art that, for such nucleic acid molecules that are not degenerate variants, a reasonable number will also encode a polypeptide having functional activity. This is because the skilled artisan is fully aware of amino acid substitutions that are either less likely or not likely to significantly effect protein function (e.g., replacing one aliphatic amino acid with a second aliphatic amino acid), as further described below.

[0116] For example, guidance concerning how to make phenotypically silent amino acid substitutions is provided in Bowie et al., "Deciphering the Message in Protein Sequences: Tolerance to Amino Acid Substitutions," *Science* 247:1306-1310 (1990), wherein the authors indicate that there are two main strategies for studying the tolerance of an amino acid sequence to change.

[0117] The first strategy exploits the tolerance of amino acid substitutions by natural selection during the process of evolution. By comparing amino acid sequences in different species, conserved amino acids can be identified. These conserved amino acids are likely important for protein function. In contrast, the amino acid positions where substitutions have been tolerated by natural selection indicates that these positions are not critical for protein function. Thus, positions tolerating amino acid substitution could be modified while still maintaining biological activity of the protein.

[0118] The second strategy uses genetic engineering to introduce amino acid changes at specific positions of a cloned gene to identify regions critical for protein function. For example, site directed mutagenesis or alanine-scanning mutagenesis (introduction of single alanine mutations at every residue in the molecule) can be used. See Cunningham and Wells, *Science* 244:1081-1085 (1989). The resulting mutant molecules can then be tested for biological activity.

[0119] As the authors state, these two strategies have revealed that proteins are surprisingly tolerant of amino acid substitutions. The authors further indicate which amino acid changes are likely to be permissive at certain amino acid positions in the protein. For example, most buried (within the tertiary structure of the protein) amino acid residues require

nonpolar side chains, whereas few features of surface side chains are generally conserved. Moreover, tolerated conservative amino acid substitutions involve replacement of the aliphatic or hydrophobic amino acids Ala, Val, Leu and Ile; replacement of the hydroxyl residues Ser and Thr; replacement of the acidic residues Asp and Glu; replacement of the amide residues Asn and Gln, replacement of the basic residues Lys, Arg, and His; replacement of the aromatic residues Phe, Tyr, and Trp, and replacement of the small-sized amino acids Ala, Ser, Thr, Met, and Gly. Besides conservative amino acid substitution, variants of the present invention include (i) substitutions with one or more of the non-conserved amino acid residues, where the substituted amino acid residues may or may not be one encoded by the genetic code, or (ii) substitutions with one or more of the amino acid residues having a substituent group, or (iii) fusion of the mature polypeptide with another compound, such as a compound to increase the stability and/or solubility of the polypeptide (for example, polyethylene glycol), (iv) fusion of the polypeptide with additional amino acids, such as, for example, an IgG Fc fusion region peptide, serum albumin (preferably human serum albumin) or a fragment thereof, or leader or secretory sequence, or a sequence facilitating purification, or (v) fusion of the polypeptide with another compound, such as albumin (including but not limited to recombinant albumin (see, e.g., U.S. Patent No. 5,876,969, issued March 2, 1999, EP Patent 0 413 622, and U.S. Patent No. 5,766,883, issued June 16, 1998, herein incorporated by reference in their entirety)). Such variant polypeptides are deemed to be within the scope of those skilled in the art from the teachings herein.

[0120] For example, polypeptide variants containing amino acid substitutions of charged amino acids with other charged or neutral amino acids may produce proteins with improved characteristics, such as less aggregation. Aggregation of pharmaceutical formulations both reduces activity and increases clearance due to the aggregate's immunogenic activity. See Pinckard et al., Clin. Exp. Immunol. 2:331-340 (1967); Robbins et al., Diabetes 36: 838-845 (1987); Cleland et al., Crit. Rev. Therapeutic Drug Carrier Systems 10:307-377 (1993).

[0121] A further embodiment of the invention relates to polypeptides which comprise the amino acid sequence of a polypeptide having an amino acid sequence which contains at least one amino acid substitution, but not more than 50 amino acid substitutions, even more preferably, not more than 40 amino acid substitutions, still more preferably, not more than 30 amino acid substitutions, and still even more preferably, not more than 20 amino acid

substitutions from a polypeptide sequence disclosed herein. Of course it is highly preferable for a polypeptide to have an amino acid sequence which comprises the amino acid sequence of a polypeptide of SEQ ID NO:Y, an amino acid sequence encoded by SEQ ID NO:X, an amino acid sequence encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, an amino acid sequence encoded by the complement of SEQ ID NO:X, and/or an amino acid sequence encoded by cDNA contained in Clone ID NO:Z which contains, in order of ever-increasing preference, at least one, but not more than 10, 9, 8, 7, 6, 5, 4, 3, 2 or 1 amino acid substitutions.

[0122] In specific embodiments, the polypeptides of the invention comprise, or alternatively, consist of, fragments or variants of a reference amino acid sequence selected from: (a) the amino acid sequence of SEQ ID NO:Y or fragments thereof (e.g., the mature form and/or other fragments described herein); (b) the amino acid sequence encoded by SEQ ID NO:X or fragments thereof; (c) the amino acid sequence encoded by the complement of SEQ ID NO:X or fragments thereof; (d) the amino acid sequence encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or fragments thereof; and (e) the amino acid sequence encoded by cDNA contained in Clone ID NO:Z or fragments thereof; wherein the fragments or variants have 1-5, 5-10, 5-25, 5-50, 10-50 or 50-150, amino acid residue additions, substitutions, and/or deletions when compared to the reference amino acid sequence. In preferred embodiments, the amino acid substitutions are conservative. Polynucleotides encoding these polypeptides are also encompassed by the invention.

#### *Polynucleotide and Polypeptide Fragments*

[0123] The present invention is also directed to polynucleotide fragments of the polynucleotides (nucleic acids) of the invention. In the present invention, a "polynucleotide fragment" refers to a polynucleotide having a nucleic acid sequence which, for example: is a portion of the cDNA contained in Clone ID NO:Z or the complementary strand thereto; is a portion of the polynucleotide sequence encoding the polypeptide encoded by the cDNA contained in Clone ID NO:Z or the complementary strand thereto; is a portion of a polynucleotide sequence encoding the amino acid sequence encoded by the region of SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto; is a portion of the polynucleotide sequence of SEQ ID NO:X as defined in columns 8 and 9 of Table 2 or the complementary strand thereto; is a portion of the polynucleotide sequence in

SEQ ID NO:X or the complementary strand thereto; is a polynucleotide sequence encoding a portion of the polypeptide of SEQ ID NO:Y; is a polynucleotide sequence encoding a portion of a polypeptide encoded by SEQ ID NO:X; or is a polynucleotide sequence encoding a portion of a polypeptide encoded by the complement of the polynucleotide sequence in SEQ ID NO:X.

[0124] The polynucleotide fragments of the invention are preferably at least about 15 nt, and more preferably at least about 20 nt, still more preferably at least about 30 nt, and even more preferably, at least about 40 nt, at least about 50 nt, at least about 75 nt, or at least about 150 nt in length. A fragment "at least 20 nt in length," for example, is intended to include 20 or more contiguous bases from the cDNA sequence contained in Clone ID NO:Z, or the nucleotide sequence shown in SEQ ID NO:X or the complementary stand thereto. In this context "about" includes the particularly recited value or a value larger or smaller by several (5, 4, 3, 2, or 1) nucleotides, at either terminus or at both termini. These nucleotide fragments have uses that include, but are not limited to, as diagnostic probes and primers as discussed herein. Of course, larger fragments (e.g., at least 160, 170, 180, 190, 200, 250, 500, 600, 1000, or 2000 nucleotides in length) are also encompassed by the invention.

[0125] Moreover, representative examples of polynucleotide fragments of the invention comprise, or alternatively consist of, a sequence from about nucleotide number 1-50, 51-100, 101-150, 151-200, 201-250, 251-300, 301-350, 351-400, 401-450, 451-500, 501-550, 551-600, 601-650, 651-700, 701-750, 751-800, 801-850, 851-900, 901-950, 951-1000, 1001-1050, 1051-1100, 1101-1150, 1151-1200, 1201-1250, 1251-1300, 1301-1350, 1351-1400, 1401-1450, 1451-1500, 1501-1550, 1551-1600, 1601-1650, 1651-1700, 1701-1750, 1751-1800, 1801-1850, 1851-1900, 1901-1950, 1951-2000, 2001-2050, 2051-2100, 2101-2150, 2151-2200, 2201-2250, 2251-2300, 2301-2350, 2351-2400, 2401-2450, 2451-2500, 2501-2550, 2551-2600, 2601-2650, 2651-2700, 2701-2750, 2751-2800, 2801-2850, 2851-2900, 2901-2950, 2951-3000, 3001-3050, 3051-3100, 3101-3150, 3151-3200, 3201-3250, 3251-3300, 3301-3350, 3351-3400, 3401-3450, 3451-3500, 3501-3550, 3551-3600, 3601-3650, 3651-3700, 3701-3750, 3751-3800, 3801-3850, 3851-3900, 3901-3950, 3951-4000, 4001-4050, 4051-4100, 4101-4150, 4151-4200, 4201-4250, 4251-4300, 4301-4350, 4351-4400, 4401-4450, 4451-4500, 4501-4550, 4551-4600, 4601-4650, 4651-4700, 4701-4750, 4751-4800, 4801-4850, 4851-4900, 4901-4950, 4951-5000, 5001-5050, 5051-5100, 5101-5150, 5151-5200, 5201-5250, 5251-5300, 5301-5350, 5351-5400, 5401-5450, 5451-5500, 5501-

5550, 5551-5600, 5601-5650, 5651-5700, 5701-5750, 5751-5800, 5801-5850, 5851-5900, 5901-5950, 5951-6000, 6001-6050, 6051-6100, 6101-6150, 6151-6200, 6201-6250, 6251-6300, 6301-6350, 6351-6400, 6401-6450, 6451-6500, 6501-6550, 6551-6600, 6601-6650, 6651-6700, 6701-6750, 6751-6800, 6801-6850, 6851-6900, 6901-6950, 6951-7000, 7001-7050, 7051-7100, 7101-7150, 7151-7200, 7201-7250, 7251-7300 or 7301 to the end of SEQ ID NO:X, or the complementary strand thereto. In this context "about" includes the particularly recited range or a range larger or smaller by several (5, 4, 3, 2, or 1) nucleotides, at either terminus or at both termini. Preferably, these fragments encode a polypeptide which has a functional activity (e.g., biological activity). More preferably, these polynucleotides can be used as probes or primers as discussed herein. Polynucleotides which hybridize to one or more of these polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

[0126] Further representative examples of polynucleotide fragments of the invention comprise, or alternatively consist of, a sequence from about nucleotide number 1-50, 51-100, 101-150, 151-200, 201-250, 251-300, 301-350, 351-400, 401-450, 451-500, 501-550, 551-600, 601-650, 651-700, 701-750, 751-800, 801-850, 851-900, 901-950, 951-1000, 1001-1050, 1051-1100, 1101-1150, 1151-1200, 1201-1250, 1251-1300, 1301-1350, 1351-1400, 1401-1450, 1451-1500, 1501-1550, 1551-1600, 1601-1650, 1651-1700, 1701-1750, 1751-1800, 1801-1850, 1851-1900, 1901-1950, 1951-2000, 2001-2050, 2051-2100, 2101-2150, 2151-2200, 2201-2250, 2251-2300, 2301-2350, 2351-2400, 2401-2450, 2451-2500, 2501-2550, 2551-2600, 2601-2650, 2651-2700, 2701-2750, 2751-2800, 2801-2850, 2851-2900, 2901-2950, 2951-3000, 3001-3050, 3051-3100, 3101-3150, 3151-3200, 3201-3250, 3251-3300, 3301-3350, 3351-3400, 3401-3450, 3451-3500, 3501-3550, 3551-3600, 3601-3650, 3651-3700, 3701-3750, 3751-3800, 3801-3850, 3851-3900, 3901-3950, 3951-4000, 4001-4050, 4051-4100, 4101-4150, 4151-4200, 4201-4250, 4251-4300, 4301-4350, 4351-4400, 4401-4450, 4451-4500, 4501-4550, 4551-4600, 4601-4650, 4651-4700, 4701-4750, 4751-4800, 4801-4850, 4851-4900, 4901-4950, 4951-5000, 5001-5050, 5051-5100, 5101-5150, 5151-5200, 5201-5250, 5251-5300, 5301-5350, 5351-5400, 5401-5450, 5451-5500, 5501-5550, 5551-5600, 5601-5650, 5651-5700, 5701-5750, 5751-5800, 5801-5850, 5851-5900, 5901-5950, 5951-6000, 6001-6050, 6051-6100, 6101-6150, 6151-6200, 6201-6250, 6251-6300, 6301-6350, 6351-6400, 6401-6450, 6451-6500, 6501-6550, 6551-6600, 6601-6650,

6651-6700, 6701-6750, 6751-6800, 6801-6850, 6851-6900, 6901-6950, 6951-7000, 7001-7050, 7051-7100, 7101-7150, 7151-7200, 7201-7250, 7251-7300 or 7301 to the end of the cDNA sequence contained in Clone ID NO:Z, or the complementary strand thereto. In this context "about" includes the particularly recited range or a range larger or smaller by several (5, 4, 3, 2, or 1) nucleotides, at either terminus or at both termini. Preferably, these fragments encode a polypeptide which has a functional activity (e.g., biological activity). More preferably, these polynucleotides can be used as probes or primers as discussed herein. Polynucleotides which hybridize to one or more of these polynucleotides under stringent hybridization conditions or alternatively, under lower stringency conditions are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

[0127] In the present invention, a "polypeptide fragment" refers to an amino acid sequence which is a portion of that contained in SEQ ID NO:Y, a portion of an amino acid sequence encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, a portion of an amino acid sequence encoded by the polynucleotide sequence of SEQ ID NO:X, a portion of an amino acid sequence encoded by the complement of the polynucleotide sequence in SEQ ID NO:X, and/or a portion of an amino acid sequence encoded by the cDNA contained in Clone ID NO:Z. Protein (polypeptide) fragments may be "free-standing," or comprised within a larger polypeptide of which the fragment forms a part or region, most preferably as a single continuous region. Representative examples of polypeptide fragments of the invention, include, for example, fragments comprising, or alternatively consisting of, from about amino acid number 1-20, 21-40, 41-60, 61-80, 81-100, 101-120, 121-140, 141-160, 161-180, 181-200, 201-220, 221-240, 241-260, 261-280, 281-300, 301-320, 321-340, 341-360, 361-380, 381-400, 401-420, 421-440, 441-460, 461-480, 481-500, 501-520, 521-540, 541-560, 561-580, 581-600, 601-620, 621-640, 641-660, 661-680, 681-700, 701-720, 721-740, 741-760, 761-780, 781-800, 801-820, 821-840, 841-860, 861-880, 881-900, 901-920, 921-940, 941-960, 961-980, 981-1000, 1001-1020, 1021-1040, 1041-1060, 1061-1080, 1081-1100, 1101-1120, 1121-1140, 1141-1160, 1161-1180, 1181-1200, 1201-1220, 1221-1240, 1241-1260, 1261-1280, 1281-1300, 1301-1320, 1321-1340, 1341-1360, 1361-1380, 1381-1400, 1401-1420, 1421-1440, or 1441 to the end of the coding region of cDNA and SEQ ID NO: Y. In a preferred embodiment, polypeptide fragments of the invention include, for example, fragments comprising, or alternatively consisting of, from about amino acid number 1-20, 21-40, 41-60, 61-80, 81-100, 101-120, 121-140, 141-160,

161-180, 181-200, 201-220, 221-240, 241-260, 261-280, 281-300, 301-320, 321-340, 341-360, 361-380, 381-400, 401-420, 421-440, 441-460, 461-480, 481-500, 501-520, 521-540, 541-560, 561-580, 581-600, 601-620, 621-640, 641-660, 661-680, 681-700, 701-720, 721-740, 741-760, 761-780, 781-800, 801-820, 821-840, 841-860, 861-880, 881-900, 901-920, 921-940, 941-960, 961-980, 981-1000, 1001-1020, 1021-1040, 1041-1060, 1061-1080, 1081-1100, 1101-1120, 1121-1140, 1141-1160, 1161-1180, 1181-1200, 1201-1220, 1221-1240, 1241-1260, 1261-1280, 1281-1300, 1301-1320, 1321-1340, 1341-1360, 1361-1380, 1381-1400, 1401-1420, 1421-1440, or 1441 to the end of the coding region of SEQ ID NO:Y. Moreover, polypeptide fragments of the invention may be at least about 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100, 110, 120, 130, 140, or 150 amino acids in length. In this context "about" includes the particularly recited ranges or values, or ranges or values larger or smaller by several (5, 4, 3, 2, or 1) amino acids, at either extreme or at both extremes. Polynucleotides encoding these polypeptide fragments are also encompassed by the invention.

[0128] Even if deletion of one or more amino acids from the N-terminus of a protein results in modification or loss of one or more biological functions of the protein, other functional activities (e.g., biological activities, ability to multimerize, ability to bind a ligand) may still be retained. For example, the ability of shortened muteins to induce and/or bind to antibodies which recognize the complete or mature forms of the polypeptides generally will be retained when less than the majority of the residues of the complete or mature polypeptide are removed from the N-terminus. Whether a particular polypeptide lacking N-terminal residues of a complete polypeptide retains such immunologic activities can readily be determined by routine methods described herein and otherwise known in the art. It is not unlikely that a mutein with a large number of deleted N-terminal amino acid residues may retain some biological or immunogenic activities. In fact, peptides composed of as few as six amino acid residues may often evoke an immune response.

[0129] Accordingly, polypeptide fragments include the secreted protein as well as the mature form. Further preferred polypeptide fragments include the secreted protein or the mature form having a continuous series of deleted residues from the amino or the carboxy terminus, or both. For example, any number of amino acids, ranging from 1-60, can be deleted from the amino terminus of either the secreted polypeptide or the mature form. Similarly, any number of amino acids, ranging from 1-30, can be deleted from the carboxy



terminus of the secreted protein or mature form. Furthermore, any combination of the above amino and carboxy terminus deletions are preferred. Similarly, polynucleotides encoding these polypeptide fragments are also preferred.

[0130] The present invention further provides polypeptides having one or more residues deleted from the amino terminus of the amino acid sequence of a polypeptide disclosed herein (e.g., a polypeptide of SEQ ID NO:Y, a polypeptide encoded by the polynucleotide sequence contained in SEQ ID NO:X or the complement thereof, a polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, and/or a polypeptide encoded by the cDNA contained in Clone ID NO:Z). In particular, N-terminal deletions may be described by the general formula m-q, where q is a whole integer representing the total number of amino acid residues in a polypeptide of the invention (e.g., the polypeptide disclosed in SEQ ID NO:Y, or the polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2), and m is defined as any integer ranging from 2 to q-6. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[0131] The present invention further provides polypeptides having one or more residues from the carboxy terminus of the amino acid sequence of a polypeptide disclosed herein (e.g., a polypeptide of SEQ ID NO:Y, a polypeptide encoded by the polynucleotide sequence contained in SEQ ID NO:X, a polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, and/or a polypeptide encoded by the cDNA contained in Clone ID NO:Z). In particular, C-terminal deletions may be described by the general formula 1-n, where n is any whole integer ranging from 6 to q-1, and where n corresponds to the position of amino acid residue in a polypeptide of the invention. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[0132] In addition, any of the above described N- or C-terminal deletions can be combined to produce a N- and C-terminal deleted polypeptide. The invention also provides polypeptides having one or more amino acids deleted from both the amino and the carboxyl termini, which may be described generally as having residues m-n of a polypeptide encoded by SEQ ID NO:X (e.g., including, but not limited to, the preferred polypeptide disclosed as SEQ ID NO:Y and the polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2), the cDNA contained in Clone ID NO:Z, and/or the complement thereof, where n and m are integers as described above. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[0133] Also as mentioned above, even if deletion of one or more amino acids from the C-terminus of a protein results in modification or loss of one or more biological functions of the protein, other functional activities (e.g., biological activities, ability to multimerize, ability to bind a ligand) may still be retained. For example the ability of the shortened mutein to induce and/or bind to antibodies which recognize the complete or mature forms of the polypeptide generally will be retained when less than the majority of the residues of the complete or mature polypeptide are removed from the C-terminus. Whether a particular polypeptide lacking C-terminal residues of a complete polypeptide retains such immunologic activities can readily be determined by routine methods described herein and otherwise known in the art. It is not unlikely that a mutein with a large number of deleted C-terminal amino acid residues may retain some biological or immunogenic activities. In fact, peptides composed of as few as six amino acid residues may often evoke an immune response.

[0134] The present application is also directed to proteins containing polypeptides at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to a polypeptide sequence set forth herein. In preferred embodiments, the application is directed to proteins containing polypeptides at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to polypeptides having the amino acid sequence of the specific N- and C-terminal deletions. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[0135] Any polypeptide sequence encoded by, for example, the polynucleotide sequences set forth as SEQ ID NO:X or the complement thereof, (presented, for example, in Tables 1 and 2), or the cDNA contained in Clone ID NO:Z, may be analyzed to determine certain preferred regions of the polypeptide. For example, the amino acid sequence of a polypeptide encoded by a polynucleotide sequence of SEQ ID NO:X (e.g., the polypeptide of SEQ ID NO:Y and the polypeptide encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2) or the cDNA contained in Clone ID NO:Z may be analyzed using the default parameters of the DNASTAR computer algorithm (DNASTAR, Inc., 1228 S. Park St., Madison, WI 53715 USA; <http://www.dnastar.com/>).

[0136] Polypeptide regions that may be routinely obtained using the DNASTAR computer algorithm include, but are not limited to, Garnier-Robson alpha-regions, beta-regions, turn-regions, and coil-regions; Chou-Fasman alpha-regions, beta-regions, and turn-regions; Kyte-Doolittle hydrophilic regions and hydrophobic regions; Eisenberg alpha- and beta-amphipathic regions; Karplus-Schulz flexible regions; Emini surface-forming regions;

and Jameson-Wolf regions of high antigenic index. Among highly preferred polynucleotides of the invention in this regard are those that encode polypeptides comprising regions that combine several structural features, such as several (e.g., 1, 2, 3 or 4) of the features set out above.

[0137] Additionally, Kyte-Doolittle hydrophilic regions and hydrophobic regions, Emin surface-forming regions, and Jameson-Wolf regions of high antigenic index (i.e., containing four or more contiguous amino acids having an antigenic index of greater than or equal to 1.5, as identified using the default parameters of the Jameson-Wolf program) can routinely be used to determine polypeptide regions that exhibit a high degree of potential for antigenicity. Regions of high antigenicity are determined from data by DNASTAR analysis by choosing values which represent regions of the polypeptide which are likely to be exposed on the surface of the polypeptide in an environment in which antigen recognition may occur in the process of initiation of an immune response.

[0138] Preferred polypeptide fragments of the invention are fragments comprising, or alternatively, consisting of, an amino acid sequence that displays a functional activity (e.g. biological activity) of the polypeptide sequence of which the amino acid sequence is a fragment. By a polypeptide displaying a "functional activity" is meant a polypeptide capable of one or more known functional activities associated with a full-length protein, such as, for example, biological activity, antigenicity, immunogenicity, and/or multimerization, as described herein.

[0139] Other preferred polypeptide fragments are biologically active fragments. Biologically active fragments are those exhibiting activity similar, but not necessarily identical, to an activity of the polypeptide of the present invention. The biological activity of the fragments may include an improved desired activity, or a decreased undesirable activity.

[0140] In preferred embodiments, polypeptides of the invention comprise, or alternatively consist of, one, two, three, four, five or more of the antigenic fragments of the polypeptide of SEQ ID NO:Y, or portions thereof. Polynucleotides encoding these polypeptides are also encompassed by the invention.

[0141] The present invention encompasses polypeptides comprising, or alternatively consisting of, an epitope of: the polypeptide sequence shown in SEQ ID NO:Y; a polypeptide sequence encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide sequence encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2;

the polypeptide sequence encoded by the cDNA contained in Clone ID NO:Z; or the polypeptide sequence encoded by a polynucleotide that hybridizes to the sequence of SEQ ID NO:X, the complement of the sequence of SEQ ID NO:X, the complement of a portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, or the cDNA sequence contained in Clone ID NO:Z under stringent hybridization conditions or alternatively, under lower stringency hybridization as defined *supra*. The present invention further encompasses polynucleotide sequences encoding an epitope of a polypeptide sequence of the invention (such as, for example, the sequence disclosed in SEQ ID NO:X, or a fragment thereof), polynucleotide sequences of the complementary strand of a polynucleotide sequence encoding an epitope of the invention, and polynucleotide sequences which hybridize to the complementary strand under stringent hybridization conditions or alternatively, under lower stringency hybridization conditions defined *supra*.

[0142] The term "epitopes," as used herein, refers to portions of a polypeptide having antigenic or immunogenic activity in an animal, preferably a mammal, and most preferably in a human. In a preferred embodiment, the present invention encompasses a polypeptide comprising an epitope, as well as the polynucleotide encoding this polypeptide. An "immunogenic epitope," as used herein, is defined as a portion of a protein that elicits an antibody response in an animal, as determined by any method known in the art, for example, by the methods for generating antibodies described *infra*. (See, for example, Geysen et al., Proc. Natl. Acad. Sci. USA 81:3998-4002 (1983)). The term "antigenic epitope," as used herein, is defined as a portion of a protein to which an antibody can immunospecifically bind its antigen as determined by any method well known in the art, for example, by the immunoassays described herein. Immunospecific binding excludes non-specific binding but does not necessarily exclude cross-reactivity with other antigens. Antigenic epitopes need not necessarily be immunogenic.

[0143] Fragments which function as epitopes may be produced by any conventional means. (See, e.g., Houghten, R. A., Proc. Natl. Acad. Sci. USA 82:5131-5135 (1985) further described in U.S. Patent No. 4,631,211.)

[0144] In the present invention, antigenic epitopes preferably contain a sequence of at least 4, at least 5, at least 6, at least 7, more preferably at least 8, at least 9, at least 10, at least 11, at least 12, at least 13, at least 14, at least 15, at least 20, at least 25, at least 30, at least 40, at least 50, and, most preferably, between about 15 to about 30 amino acids. Preferred



polypeptides comprising immunogenic or antigenic epitopes are at least 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, or 100 amino acid residues in length. Additional non-exclusive preferred antigenic epitopes include the antigenic epitopes disclosed herein, as well as portions thereof. Antigenic epitopes are useful, for example, to raise antibodies, including monoclonal antibodies, that specifically bind the epitope. Preferred antigenic epitopes include the antigenic epitopes disclosed herein, as well as any combination of two, three, four, five or more of these antigenic epitopes. Antigenic epitopes can be used as the target molecules in immunoassays. (See, for instance, Wilson et al., Cell 37:767-778 (1984); Sutcliffe et al., Science 219:660-666 (1983)).

[0145] Non-limiting examples of epitopes of polypeptides that can be used to generate antibodies of the invention include a polypeptide comprising, or alternatively consisting of, at least one, two, three, four, five, six or more of the portion(s) of SEQ ID NO:Y specified in column 7 of Table 1. These polypeptide fragments have been determined to bear antigenic epitopes of the proteins of the invention by the analysis of the Jameson-Wolf antigenic index which is included in the DNASTar suite of computer programs. By "comprise" it is intended that a polypeptide contains at least one, two, three, four, five, six or more of the portion(s) of SEQ ID NO:Y shown in column 7 of Table 1, but it may contain additional flanking residues on either the amino or carboxyl termini of the recited portion. Such additional flanking sequences are preferably sequences naturally found adjacent to the portion; i.e., contiguous sequence shown in SEQ ID NO:Y. The flanking sequence may, however, be sequences from a heterologous polypeptide, such as from another protein described herein or from a heterologous polypeptide not described herein. In particular embodiments, epitope portions of a polypeptide of the invention comprise one, two, three, or more of the portions of SEQ ID NO:Y shown in column 7 of Table 1.

[0146] Similarly, immunogenic epitopes can be used, for example, to induce antibodies according to methods well known in the art. See, for instance, Sutcliffe et al., *supra*; Wilson et al., *supra*; Chow et al., Proc. Natl. Acad. Sci. USA 82:910-914; and Bittle et al., J. Gen. Virol. 66:2347-2354 (1985). Preferred immunogenic epitopes include the immunogenic epitopes disclosed herein, as well as any combination of two, three, four, five or more of these immunogenic epitopes. The polypeptides comprising one or more immunogenic epitopes may be presented for eliciting an antibody response together with a carrier protein, such as an albumin, to an animal system (such as rabbit or mouse), or, if the polypeptide is of

sufficient length (at least about 25 amino acids), the polypeptide may be presented without a carrier. However, immunogenic epitopes comprising as few as 8 to 10 amino acids have been shown to be sufficient to raise antibodies capable of binding to, at the very least, linear epitopes in a denatured polypeptide (e.g., in Western blotting).

[0147] Epitope-bearing polypeptides of the present invention may be used to induce antibodies according to methods well known in the art including, but not limited to, *in vivo* immunization, *in vitro* immunization, and phage display methods. See, e.g., Sutcliffe et al., *supra*; Wilson et al., *supra*, and Bittle et al., J. Gen. Virol., 66:2347-2354 (1985). If *in vivo* immunization is used, animals may be immunized with free peptide; however, anti-peptide antibody titer may be boosted by coupling the peptide to a macromolecular carrier, such as keyhole limpet hemacyanin (KLH) or tetanus toxoid. For instance, peptides containing cysteine residues may be coupled to a carrier using a linker such as maleimidobenzoyl- N-hydroxysuccinimide ester (MBS), while other peptides may be coupled to carriers using a more general linking agent such as glutaraldehyde. Animals such as rabbits, rats and mice are immunized with either free or carrier- coupled peptides, for instance, by intraperitoneal and/or intradermal injection of emulsions containing about 100 µg of peptide or carrier protein and Freund's adjuvant or any other adjuvant known for stimulating an immune response. Several booster injections may be needed, for instance, at intervals of about two weeks, to provide a useful titer of anti-peptide antibody which can be detected, for example, by ELISA assay using free peptide adsorbed to a solid surface. The titer of anti-peptide antibodies in serum from an immunized animal may be increased by selection of anti-peptide antibodies, for instance, by adsorption to the peptide on a solid support and elution of the selected antibodies according to methods well known in the art.

[0148] As one of skill in the art will appreciate, and as discussed above, the polypeptides of the present invention (e.g., those comprising an immunogenic or antigenic epitope) can be fused to heterologous polypeptide sequences. For example, polypeptides of the present invention (including fragments or variants thereof), may be fused with the constant domain of immunoglobulins (IgA, IgE, IgG, IgM), or portions thereof (CH1, CH2, CH3, or any combination thereof and portions thereof, resulting in chimeric polypeptides. By way of another non-limiting example, polypeptides and/or antibodies of the present invention (including fragments or variants thereof) may be fused with albumin (including but not limited to recombinant human serum albumin or fragments or variants thereof (see, e.g., U.S.

Patent No. 5,876,969, issued March 2, 1999, EP Patent 0 413 622, and U.S. Patent No. 5,766,883, issued June 16, 1998, herein incorporated by reference in their entirety)). In a preferred embodiment, polypeptides and/or antibodies of the present invention (including fragments or variants thereof) are fused with the mature form of human serum albumin (i.e., amino acids 1 – 585 of human serum albumin as shown in Figures 1 and 2 of EP Patent 0 322 094) which is herein incorporated by reference in its entirety. In another preferred embodiment, polypeptides and/or antibodies of the present invention (including fragments or variants thereof) are fused with polypeptide fragments comprising, or alternatively consisting of, amino acid residues 1-z of human serum albumin, where z is an integer from 369 to 419, as described in U.S. Patent 5,766,883 herein incorporated by reference in its entirety. Polypeptides and/or antibodies of the present invention (including fragments or variants thereof) may be fused to either the N- or C-terminal end of the heterologous protein (e.g., immunoglobulin Fc polypeptide or human serum albumin polypeptide). Polynucleotides encoding fusion proteins of the invention are also encompassed by the invention.

[0149] Such fusion proteins as those described above may facilitate purification and may increase half-life *in vivo*. This has been shown for chimeric proteins consisting of the first two domains of the human CD4-polypeptide and various domains of the constant regions of the heavy or light chains of mammalian immunoglobulins. See, e.g., EP 394,827; Traunecker et al., *Nature*, 331:84-86 (1988). Enhanced delivery of an antigen across the epithelial barrier to the immune system has been demonstrated for antigens (e.g., insulin) conjugated to an FcRn binding partner such as IgG or Fc fragments (see, e.g., PCT Publications WO 96/22024 and WO 99/04813). IgG fusion proteins that have a disulfide-linked dimeric structure due to the IgG portion disulfide bonds have also been found to be more efficient in binding and neutralizing other molecules than monomeric polypeptides or fragments thereof alone. See, e.g., Fountoulakis et al., *J. Biochem.*, 270:3958-3964 (1995). Nucleic acids encoding the above epitopes can also be recombined with a gene of interest as an epitope tag (e.g., the hemagglutinin (HA) tag or flag tag) to aid in detection and purification of the expressed polypeptide. For example, a system described by Janknecht et al. allows for the ready purification of non-denatured fusion proteins expressed in human cell lines (Janknecht et al., 1991, *Proc. Natl. Acad. Sci. USA* 88:8972- 897). In this system, the gene of interest is subcloned into a vaccinia recombination plasmid such that the open reading frame of the gene is translationally fused to an amino-terminal tag consisting of six



histidine residues. The tag serves as a matrix binding domain for the fusion protein. Extracts from cells infected with the recombinant vaccinia virus are loaded onto Ni<sup>2+</sup>-nitriloacetic acid-agarose column and histidine-tagged proteins can be selectively eluted with imidazole-containing buffers.

#### *Fusion Proteins*

[0150] Any polypeptide of the present invention can be used to generate fusion proteins. For example, the polypeptide of the present invention, when fused to a second protein, can be used as an antigenic tag. Antibodies raised against the polypeptide of the present invention can be used to indirectly detect the second protein by binding to the polypeptide. Moreover, because secreted proteins target cellular locations based on trafficking signals, polypeptides of the present invention which are shown to be secreted can be used as targeting molecules once fused to other proteins.

[0151] Examples of domains that can be fused to polypeptides of the present invention include not only heterologous signal sequences, but also other heterologous functional regions. The fusion does not necessarily need to be direct, but may occur through linker sequences.

[0152] In certain preferred embodiments, proteins of the invention are fusion proteins comprising an amino acid sequence that is an N and/or C-terminal deletion of a polypeptide of the invention. In preferred embodiments, the invention is directed to a fusion protein comprising an amino acid sequence that is at least 90%, 95%, 96%, 97%, 98% or 99% identical to a polypeptide sequence of the invention. Polynucleotides encoding these proteins are also encompassed by the invention.

[0153] Moreover, fusion proteins may also be engineered to improve characteristics of the polypeptide of the present invention. For instance, a region of additional amino acids, particularly charged amino acids, may be added to the N-terminus of the polypeptide to improve stability and persistence during purification from the host cell or subsequent handling and storage. Also, peptide moieties may be added to the polypeptide to facilitate purification. Such regions may be removed prior to final preparation of the polypeptide. The addition of peptide moieties to facilitate handling of polypeptides are familiar and routine techniques in the art.

[0154] As one of skill in the art will appreciate that, as discussed above, polypeptides of the present invention, and epitope-bearing fragments thereof, can be combined with heterologous polypeptide sequences. For example, the polypeptides of the present invention may be fused with heterologous polypeptide sequences, for example, the polypeptides of the present invention may be fused with the constant domain of immunoglobulins (IgA, IgE, IgG, IgM) or portions thereof (CH1, CH2, CH3, and any combination thereof, including both entire domains and portions thereof), or albumin (including, but not limited to, native or recombinant human albumin or fragments or variants thereof (see, e.g., U.S. Patent No. 5,876,969, issued March 2, 1999, EP Patent 0 413 622, and U.S. Patent No. 5,766,883, issued June 16, 1998, herein incorporated by reference in their entirety)), resulting in chimeric polypeptides. For example, EP-A-O 464 533 (Canadian counterpart 2045869) discloses fusion proteins comprising various portions of constant region of immunoglobulin molecules together with another human protein or part thereof. In many cases, the Fc part in a fusion protein is beneficial in therapy and diagnosis, and thus can result in, for example, improved pharmacokinetic properties (EP-A 0232 262). Alternatively, deleting the Fc part after the fusion protein has been expressed, detected, and purified, would be desired. For example, the Fc portion may hinder therapy and diagnosis if the fusion protein is used as an antigen for immunizations. In drug discovery, for example, human proteins, such as hIL-5, have been fused with Fc portions for the purpose of high-throughput screening assays to identify antagonists of hIL-5. See, D. Bennett et al., *J. Molecular Recognition* 8:52-58 (1995); K. Johanson et al., *J. Biol. Chem.* 270:9459-9471 (1995).

[0155] Moreover, the polypeptides of the present invention can be fused to marker sequences, such as a polypeptide which facilitates purification of the fused polypeptide. In preferred embodiments, the marker amino acid sequence is a hexa-histidine peptide, such as the tag provided in a pQE vector (QIAGEN, Inc., 9259 Eton Avenue, Chatsworth, CA, 91311), among others, many of which are commercially available. As described in Gentz et al., *Proc. Natl. Acad. Sci. USA* 86:821-824 (1989), for instance, hexa-histidine provides for convenient purification of the fusion protein. Another peptide tag useful for purification, the "HA" tag, corresponds to an epitope derived from the influenza hemagglutinin protein (Wilson et al., *Cell* 37:767 (1984)).

[0156] Additional fusion proteins of the invention may be generated through the techniques of gene-shuffling, motif-shuffling, exon-shuffling, and/or codon-shuffling

(collectively referred to as "DNA shuffling"). DNA shuffling may be employed to modulate the activities of polypeptides of the invention, such methods can be used to generate polypeptides with altered activity, as well as agonists and antagonists of the polypeptides. See, generally, U.S. Patent Nos. 5,605,793; 5,811,238; 5,830,721; 5,834,252; and 5,837,458, and Patten et al., Curr. Opin. Biotechnol. 8:724-33 (1997); Harayama, Trends Biotechnol. 16(2):76-82 (1998); Hansson, et al., J. Mol. Biol. 287:265-76 (1999); and Lorenzo and Blasco, Biotechniques 24(2):308- 13 (1998) (each of these patents and publications are hereby incorporated by reference in its entirety). In one embodiment, alteration of polynucleotides corresponding to SEQ ID NO:X and the polypeptides encoded by these polynucleotides may be achieved by DNA shuffling. DNA shuffling involves the assembly of two or more DNA segments by homologous or site-specific recombination to generate variation in the polynucleotide sequence. In another embodiment, polynucleotides of the invention, or the encoded polypeptides, may be altered by being subjected to random mutagenesis by error-prone PCR, random nucleotide insertion or other methods prior to recombination. In another embodiment, one or more components, motifs, sections, parts, domains, fragments, etc., of a polynucleotide encoding a polypeptide of the invention may be recombined with one or more components, motifs, sections, parts, domains, fragments, etc. of one or more heterologous molecules.

[0157] Thus, any of these above fusions can be engineered using the polynucleotides or the polypeptides of the present invention.

#### **Recombinant and Synthetic Production of Polypeptides of the Invention**

[0158] The present invention also relates to vectors containing the polynucleotide of the present invention, host cells, and the production of polypeptides by synthetic and recombinant techniques. The vector may be, for example, a phage, plasmid, viral, or retroviral vector. Retroviral vectors may be replication competent or replication defective. In the latter case, viral propagation generally will occur only in complementing host cells.

[0159] The polynucleotides of the invention may be joined to a vector containing a selectable marker for propagation in a host. Generally, a plasmid vector is introduced in a precipitate, such as a calcium phosphate precipitate, or in a complex with a charged lipid. If the vector is a virus, it may be packaged in vitro using an appropriate packaging cell line and then transduced into host cells.

[0160] The polynucleotide insert should be operatively linked to an appropriate promoter, such as the phage lambda PL promoter, the *E. coli* lac, trp, phoA and tac promoters, the SV40 early and late promoters and promoters of retroviral LTRs, to name a few. Other suitable promoters will be known to the skilled artisan. The expression constructs will further contain sites for transcription initiation, termination, and, in the transcribed region, a ribosome binding site for translation. The coding portion of the transcripts expressed by the constructs will preferably include a translation initiating codon at the beginning and a termination codon (UAA, UGA or UAG) appropriately positioned at the end of the polypeptide to be translated.

[0161] As indicated, the expression vectors will preferably include at least one selectable marker. Such markers include dihydrofolate reductase, G418, glutamine synthase, or neomycin resistance for eukaryotic cell culture, and tetracycline, kanamycin or ampicillin resistance genes for culturing in *E. coli* and other bacteria. Representative examples of appropriate hosts include, but are not limited to, bacterial cells, such as *E. coli*, *Streptomyces* and *Salmonella typhimurium* cells; fungal cells, such as yeast cells (e.g., *Saccharomyces cerevisiae* or *Pichia pastoris* (ATCC Accession No. 201178)); insect cells such as *Drosophila* S2 and *Spodoptera Sf9* cells; animal cells such as CHO, COS, 293, and Bowes melanoma cells; and plant cells. Appropriate culture mediums and conditions for the above-described host cells are known in the art.

[0162] Among vectors preferred for use in bacteria include pQE70, pQE60 and pQE-9, available from QIAGEN, Inc.; pBluescript vectors, Phagescript vectors, pNH8A, pNH16A, pNH18A, pNH46A, available from Stratagene Cloning Systems, Inc.; and ptrc99a, pKK223-3, pKK233-3, pDR540, pRIT5 available from Pharmacia Biotech, Inc. Among preferred eukaryotic vectors are pWLNEO, pSV2CAT, pOG44, pXT1 and pSG available from Stratagene; and pSVK3, pBPV, pMSG and pSVL available from Pharmacia. Preferred expression vectors for use in yeast systems include, but are not limited to pYES2, pYD1, pTEF1/Zeo, pYES2/GS, pPICZ, pGAPZ, pGAPZalph, pPIC9, pPIC3.5, pHIL-D2, pHIL-S1, pPIC3.5K, pPIC9K, and PAO815 (all available from Invitrogen, Carlsbad, CA). Other suitable vectors will be readily apparent to the skilled artisan.

[0163] Vectors which use glutamine synthase (GS) or DHFR as the selectable markers can be amplified in the presence of the drugs methionine sulfoximine or methotrexate, respectively. An advantage of glutamine synthase based vectors are the availability of cell lines (e.g., the murine myeloma cell line, NS0) which are glutamine synthase negative.

Glutamine synthase expression systems can also function in glutamine synthase expressing cells (e.g., Chinese Hamster Ovary (CHO) cells) by providing additional inhibitor to prevent the functioning of the endogenous gene. A glutamine synthase expression system and components thereof are detailed in PCT publications: WO87/04462; WO86/05807; WO89/01036; WO89/10404; and WO91/06657, which are hereby incorporated in their entireties by reference herein. Additionally, glutamine synthase expression vectors can be obtained from Lonza Biologics, Inc. (Portsmouth, NH). Expression and production of monoclonal antibodies using a GS expression system in murine myeloma cells is described in Bebbington *et al.*, *Bio/technology* 10:169(1992) and in Biblia and Robinson *Biotechnol. Prog.* 11:1 (1995) which are herein incorporated by reference.

[0164] The present invention also relates to host cells containing the above-described vector constructs described herein, and additionally encompasses host cells containing nucleotide sequences of the invention that are operably associated with one or more heterologous control regions (e.g., promoter and/or enhancer) using techniques known of in the art. The host cell can be a higher eukaryotic cell, such as a mammalian cell (e.g., a human derived cell), or a lower eukaryotic cell, such as a yeast cell, or the host cell can be a prokaryotic cell, such as a bacterial cell. A host strain may be chosen which modulates the expression of the inserted gene sequences, or modifies and processes the gene product in the specific fashion desired. Expression from certain promoters can be elevated in the presence of certain inducers; thus expression of the genetically engineered polypeptide may be controlled. Furthermore, different host cells have characteristics and specific mechanisms for the translational and post-translational processing and modification (e.g., phosphorylation, cleavage) of proteins. Appropriate cell lines can be chosen to ensure the desired modifications and processing of the foreign protein expressed.

[0165] Introduction of the nucleic acids and nucleic acid constructs of the invention into the host cell can be effected by calcium phosphate transfection, DEAE-dextran mediated transfection, cationic lipid-mediated transfection, electroporation, transduction, infection, or other methods. Such methods are described in many standard laboratory manuals, such as Davis *et al.*, *Basic Methods In Molecular Biology* (1986). It is specifically contemplated that the polypeptides of the present invention may in fact be expressed by a host cell lacking a recombinant vector.

[0166] In addition to encompassing host cells containing the vector constructs discussed

herein, the invention also encompasses primary, secondary, and immortalized host cells of vertebrate origin, particularly mammalian origin, that have been engineered to delete or replace endogenous genetic material (e.g., the coding sequence), and/or to include genetic material (e.g., heterologous polynucleotide sequences) that is operably associated with polynucleotides of the invention, and which activates, alters, and/or amplifies endogenous polynucleotides. For example, techniques known in the art may be used to operably associate heterologous control regions (e.g., promoter and/or enhancer) and endogenous polynucleotide sequences via homologous recombination (see, e.g., US Patent Number 5,641,670, issued June 24, 1997; International Publication Number WO 96/29411; International Publication Number WO 94/12650; Koller *et al.*, *Proc. Natl. Acad. Sci. USA* 86:8932-8935 (1989); and Zijlstra *et al.*, *Nature* 342:435-438 (1989), the disclosures of each of which are incorporated by reference in their entireties).

[0167] Polypeptides of the invention can be recovered and purified from recombinant cell cultures by well-known methods including ammonium sulfate or ethanol precipitation, acid extraction, anion or cation exchange chromatography, phosphocellulose chromatography, hydrophobic interaction chromatography, affinity chromatography, hydroxylapatite chromatography and lectin chromatography. Most preferably, high performance liquid chromatography ("HPLC") is employed for purification.

[0168] Polypeptides of the present invention can also be recovered from: products purified from natural sources, including bodily fluids, tissues and cells, whether directly isolated or cultured; products of chemical synthetic procedures; and products produced by recombinant techniques from a prokaryotic or eukaryotic host, including, for example, bacterial, yeast, higher plant, insect, and mammalian cells. Depending upon the host employed in a recombinant production procedure, the polypeptides of the present invention may be glycosylated or may be non-glycosylated. In addition, polypeptides of the invention may also include an initial modified methionine residue, in some cases as a result of host-mediated processes. Thus, it is well known in the art that the N-terminal methionine encoded by the translation initiation codon generally is removed with high efficiency from any protein after translation in all eukaryotic cells. While the N-terminal methionine on most proteins also is efficiently removed in most prokaryotes, for some proteins, this prokaryotic removal process is inefficient, depending on the nature of the amino acid to which the N-terminal methionine is covalently linked.

[0169] In one embodiment, the yeast *Pichia pastoris* is used to express polypeptides of the invention in a eukaryotic system. *Pichia pastoris* is a methylotrophic yeast which can metabolize methanol as its sole carbon source. A main step in the methanol metabolism pathway is the oxidation of methanol to formaldehyde using O<sub>2</sub>. This reaction is catalyzed by the enzyme alcohol oxidase. In order to metabolize methanol as its sole carbon source, *Pichia pastoris* must generate high levels of alcohol oxidase due, in part, to the relatively low affinity of alcohol oxidase for O<sub>2</sub>. Consequently, in a growth medium depending on methanol as a main carbon source, the promoter region of one of the two alcohol oxidase genes (*AOX1*) is highly active. In the presence of methanol, alcohol oxidase produced from the *AOX1* gene comprises up to approximately 30% of the total soluble protein in *Pichia pastoris*. See Ellis, S.B., *et al.*, *Mol. Cell. Biol.* 5:1111-21 (1985); Koutz, P.J., *et al.*, *Yeast* 5:167-77 (1989); Tschopp, J.F., *et al.*, *Nucl. Acids Res.* 15:3859-76 (1987). Thus, a heterologous coding sequence, such as, for example, a polynucleotide of the present invention, under the transcriptional regulation of all or part of the *AOX1* regulatory sequence is expressed at exceptionally high levels in *Pichia* yeast grown in the presence of methanol.

[0170] In one example, the plasmid vector pPIC9K is used to express DNA encoding a polypeptide of the invention, as set forth herein, in a *Pichea* yeast system essentially as described in "*Pichia* Protocols: Methods in Molecular Biology," D.R. Higgins and J. Cregg, eds. The Humana Press, Totowa, NJ, 1998. This expression vector allows expression and secretion of a polypeptide of the invention by virtue of the strong *AOX1* promoter linked to the *Pichia pastoris* alkaline phosphatase (PHO) secretory signal peptide (i.e., leader) located upstream of a multiple cloning site.

[0171] Many other yeast vectors could be used in place of pPIC9K, such as, pYES2, pYD1, pTEF1/Zeo, pYES2/GS, pPICZ, pGAPZ, pGAPZalpha, pPIC9, pPIC3.5, pHIL-D2, pHIL-S1, pPIC3.5K, and PAO815, as one skilled in the art would readily appreciate, as long as the proposed expression construct provides appropriately located signals for transcription, translation, secretion (if desired), and the like, including an in-frame AUG as required.

[0172] In another embodiment, high-level expression of a heterologous coding sequence, such as, for example, a polynucleotide of the present invention, may be achieved by cloning

the heterologous polynucleotide of the invention into an expression vector such as, for example, pGAPZ or pGAPZalpha, and growing the yeast culture in the absence of methanol.

[0173] In addition to encompassing host cells containing the vector constructs discussed herein, the invention also encompasses primary, secondary, and immortalized host cells of vertebrate origin, particularly mammalian origin, that have been engineered to delete or replace endogenous genetic material (e.g., coding sequence), and/or to include genetic material (e.g., heterologous polynucleotide sequences) that is operably associated with polynucleotides of the invention, and which activates, alters, and/or amplifies endogenous polynucleotides. For example, techniques known in the art may be used to operably associate heterologous control regions (e.g., promoter and/or enhancer) and endogenous polynucleotide sequences via homologous recombination (see, e.g., U.S. Patent No. 5,641,670, issued June 24, 1997; International Publication No. WO 96/29411, published September 26, 1996; International Publication No. WO 94/12650, published August 4, 1994; Koller et al., Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); and Zijlstra et al., Nature 342:435-438 (1989), the disclosures of each of which are incorporated by reference in their entireties).

[0174] In addition, polypeptides of the invention can be chemically synthesized using techniques known in the art (e.g., see Creighton, 1983, Proteins: Structures and Molecular Principles, W.H. Freeman & Co., N.Y., and Hunkapiller et al., Nature, 310:105-111 (1984)). For example, a polypeptide corresponding to a fragment of a polypeptide can be synthesized by use of a peptide synthesizer. Furthermore, if desired, nonclassical amino acids or chemical amino acid analogs can be introduced as a substitution or addition into the polypeptide sequence. Non-classical amino acids include, but are not limited to, to the D-isomers of the common amino acids, 2,4-diaminobutyric acid,  $\alpha$ -amino isobutyric acid, 4-aminobutyric acid, Abu, 2-amino butyric acid,  $\gamma$ -Abu,  $\epsilon$ -Ahx, 6-amino hexanoic acid, Aib, 2-amino isobutyric acid, 3-amino propionic acid, ornithine, norleucine, norvaline, hydroxyproline, sarcosine, citrulline, homocitrulline, cysteic acid, t-butylglycine, t-butylalanine, phenylglycine, cyclohexylalanine,  $\beta$ -alanine, fluoro-amino acids, designer amino acids such as  $\beta$ -methyl amino acids, Ca-methyl amino acids, Na-methyl amino acids, and amino acid analogs in general. Furthermore, the amino acid can be D (dextrorotary) or L (levorotary).

[0175] The invention encompasses polypeptides of the present invention which are



differentially modified during or after translation, e.g., by glycosylation, acetylation, phosphorylation, amidation, derivatization by known protecting/blocking groups, proteolytic cleavage, linkage to an antibody molecule or other cellular ligand, etc. Any of numerous chemical modifications may be carried out by known techniques, including but not limited, to specific chemical cleavage by cyanogen bromide, trypsin, chymotrypsin, papain, V8 protease, NaBH<sub>4</sub>; acetylation, formylation, oxidation, reduction; metabolic synthesis in the presence of tunicamycin; etc.

[0176] Additional post-translational modifications encompassed by the invention include, for example, e.g., N-linked or O-linked carbohydrate chains, processing of N-terminal or C-terminal ends), attachment of chemical moieties to the amino acid backbone, chemical modifications of N-linked or O-linked carbohydrate chains, and addition or deletion of an N-terminal methionine residue as a result of procaryotic host cell expression. The polypeptides may also be modified with a detectable label, such as an enzymatic, fluorescent, isotopic or affinity label to allow for detection and isolation of the protein.

[0177] Examples of suitable enzymes include horseradish peroxidase, alkaline phosphatase, beta-galactosidase, or acetylcholinesterase; examples of suitable prosthetic group complexes include streptavidin/biotin and avidin/biotin; examples of suitable fluorescent materials include umbelliferone, fluorescein, fluorescein isothiocyanate, rhodamine, dichlorotriazinylamine fluorescein, dansyl chloride or phycoerythrin; an example of a luminescent material includes luminol; examples of bioluminescent materials include luciferase, luciferin, and aequorin; and examples of suitable radioactive material include iodine (<sup>121</sup>I, <sup>123</sup>I, <sup>125</sup>I, <sup>131</sup>I), carbon (<sup>14</sup>C), sulfur (<sup>35</sup>S), tritium (<sup>3</sup>H), indium (<sup>111</sup>In, <sup>112</sup>In, <sup>113m</sup>In, <sup>115m</sup>In), technetium (<sup>99</sup>Tc, <sup>99m</sup>Tc), thallium (<sup>201</sup>Tl), gallium (<sup>68</sup>Ga, <sup>67</sup>Ga), palladium (<sup>103</sup>Pd), molybdenum (<sup>99</sup>Mo), xenon (<sup>133</sup>Xe), fluorine (<sup>18</sup>F), <sup>153</sup>Sm, <sup>177</sup>Lu, <sup>159</sup>Gd, <sup>149</sup>Pm, <sup>140</sup>La, <sup>175</sup>Yb, <sup>166</sup>Ho, <sup>90</sup>Y, <sup>47</sup>Sc, <sup>186</sup>Re, <sup>188</sup>Re, <sup>142</sup>Pr, <sup>105</sup>Rh, and <sup>97</sup>Ru.

[0178] In specific embodiments, a polypeptide of the present invention or fragment or variant thereof is attached to macrocyclic chelators that associate with radiometal ions, including but not limited to, <sup>177</sup>Lu, <sup>90</sup>Y, <sup>166</sup>Ho, and <sup>153</sup>Sm, to polypeptides. In a preferred embodiment, the radiometal ion associated with the macrocyclic chelators is <sup>111</sup>In. In another preferred embodiment, the radiometal ion associated with the macrocyclic chelator is <sup>90</sup>Y. In specific embodiments, the macrocyclic chelator is 1,4,7,10-tetraazacyclododecane-N,N',N'',N'''-tetraacetic acid (DOTA). In other specific embodiments, DOTA is attached to an

antibody of the invention or fragment thereof via a linker molecule. Examples of linker molecules useful for conjugating DOTA to a polypeptide are commonly known in the art - see, for example, DeNardo et al., Clin Cancer Res. 4(10):2483-90 (1998); Peterson et al., Bioconjug. Chem. 10(4):553-7 (1999); and Zimmerman et al, Nucl. Med. Biol. 26(8):943-50 (1999); which are hereby incorporated by reference in their entirety.

[0179] As mentioned, the proteins of the invention may be modified by either natural processes, such as posttranslational processing, or by chemical modification techniques which are well known in the art. It will be appreciated that the same type of modification may be present in the same or varying degrees at several sites in a given polypeptide. Polypeptides of the invention may be branched, for example, as a result of ubiquitination, and they may be cyclic, with or without branching. Cyclic, branched, and branched cyclic polypeptides may result from posttranslation natural processes or may be made by synthetic methods. Modifications include acetylation, acylation, ADP-ribosylation, amidation, covalent attachment of flavin, covalent attachment of a heme moiety, covalent attachment of a nucleotide or nucleotide derivative, covalent attachment of a lipid or lipid derivative, covalent attachment of phosphatidylinositol, cross-linking, cyclization, disulfide bond formation, demethylation, formation of covalent cross-links, formation of cysteine, formation of pyroglutamate, formylation, gamma-carboxylation, glycosylation, GPI anchor formation, hydroxylation, iodination, methylation, myristoylation, oxidation, pegylation, proteolytic processing, phosphorylation, prenylation, racemization, selenoylation, sulfation, transfer-RNA mediated addition of amino acids to proteins such as arginylation, and ubiquitination. (See, for instance, PROTEINS - STRUCTURE AND MOLECULAR PROPERTIES, 2nd Ed., T. E. Creighton, W. H. Freeman and Company, New York (1993); POSTTRANSLATIONAL COVALENT MODIFICATION OF PROTEINS, B. C. Johnson, Ed., Academic Press, New York, pgs. 1-12 (1983); Seifter et al., Meth. Enzymol. 182:626-646 (1990); Rattan et al., Ann. N.Y. Acad. Sci. 663:48-62 (1992)).

[0180] Also provided by the invention are chemically modified derivatives of the polypeptides of the invention which may provide additional advantages such as increased solubility, stability and circulating time of the polypeptide, or decreased immunogenicity (see U.S. Patent No. 4,179,337). The chemical moieties for derivitization may be selected from water soluble polymers such as polyethylene glycol, ethylene glycol/propylene glycol copolymers, carboxymethylcellulose, dextran, polyvinyl alcohol and the like. The

polypeptides may be modified at random positions within the molecule, or at predetermined positions within the molecule and may include one, two, three or more attached chemical moieties.

[0181] The polymer may be of any molecular weight, and may be branched or unbranched. For polyethylene glycol, the preferred molecular weight is between about 1 kDa and about 100 kDa (the term "about" indicating that in preparations of polyethylene glycol, some molecules will weigh more, some less, than the stated molecular weight) for ease in handling and manufacturing. Other sizes may be used, depending on the desired therapeutic profile (e.g., the duration of sustained release desired, the effects, if any on biological activity, the ease in handling, the degree or lack of antigenicity and other known effects of the polyethylene glycol to a therapeutic protein or analog). For example, the polyethylene glycol may have an average molecular weight of about 200, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500, 6000, 6500, 7000, 7500, 8000, 8500, 9000, 9500, 10,000, 10,500, 11,000, 11,500, 12,000, 12,500, 13,000, 13,500, 14,000, 14,500, 15,000, 15,500, 16,000, 16,500, 17,000, 17,500, 18,000, 18,500, 19,000, 19,500, 20,000, 25,000, 30,000, 35,000, 40,000, 45,000, 50,000, 55,000, 60,000, 65,000, 70,000, 75,000, 80,000, 85,000, 90,000, 95,000, or 100,000 kDa.

[0182] As noted above, the polyethylene glycol may have a branched structure. Branched polyethylene glycols are described, for example, in U.S. Patent No. 5,643,575; Morpurgo *et al.*, *Appl. Biochem. Biotechnol.* 56:59-72 (1996); Vorobjev *et al.*, *Nucleosides Nucleotides* 18:2745-2750 (1999); and Caliceti *et al.*, *Bioconjug. Chem.* 10:638-646 (1999), the disclosures of each of which are incorporated herein by reference.

[0183] The polyethylene glycol molecules (or other chemical moieties) should be attached to the protein with consideration of effects on functional or antigenic domains of the protein. There are a number of attachment methods available to those skilled in the art, such as, for example, the method disclosed in EP 0 401 384 (coupling PEG to G-CSF), herein incorporated by reference; see also Malik *et al.*, *Exp. Hematol.* 20:1028-1035 (1992), reporting pegylation of GM-CSF using tresyl chloride. For example, polyethylene glycol may be covalently bound through amino acid residues via a reactive group, such as a free amino or carboxyl group. Reactive groups are those to which an activated polyethylene glycol molecule may be bound. The amino acid residues having a free amino group may include lysine residues and the N-terminal amino acid residues; those having a free carboxyl

group may include aspartic acid residues glutamic acid residues and the C-terminal amino acid residue. Sulfhydryl groups may also be used as a reactive group for attaching the polyethylene glycol molecules. Preferred for therapeutic purposes is attachment at an amino group, such as attachment at the N-terminus or lysine group.

[0184] As suggested above, polyethylene glycol may be attached to proteins via linkage to any of a number of amino acid residues. For example, polyethylene glycol can be linked to proteins via covalent bonds to lysine, histidine, aspartic acid, glutamic acid, or cysteine residues. One or more reaction chemistries may be employed to attach polyethylene glycol to specific amino acid residues (e.g., lysine, histidine, aspartic acid, glutamic acid, or cysteine) of the protein or to more than one type of amino acid residue (e.g., lysine, histidine, aspartic acid, glutamic acid, cysteine and combinations thereof) of the protein.

[0185] One may specifically desire proteins chemically modified at the N-terminus. Using polyethylene glycol as an illustration of the present composition, one may select from a variety of polyethylene glycol molecules (by molecular weight, branching, etc.), the proportion of polyethylene glycol molecules to protein (polypeptide) molecules in the reaction mix, the type of pegylation reaction to be performed, and the method of obtaining the selected N-terminally pegylated protein. The method of obtaining the N-terminally pegylated preparation (i.e., separating this moiety from other monopegylated moieties if necessary) may be by purification of the N-terminally pegylated material from a population of pegylated protein molecules. Selective proteins chemically modified at the N-terminus modification may be accomplished by reductive alkylation which exploits differential reactivity of different types of primary amino groups (lysine versus the N-terminal) available for derivatization in a particular protein. Under the appropriate reaction conditions, substantially selective derivatization of the protein at the N-terminus with a carbonyl group containing polymer is achieved.

[0186] As indicated above, pegylation of the proteins of the invention may be accomplished by any number of means. For example, polyethylene glycol may be attached to the protein either directly or by an intervening linker. Linkerless systems for attaching polyethylene glycol to proteins are described in Delgado et al., *Crit. Rev. Thera. Drug Carrier Sys.* 9:249-304 (1992); Francis et al., *Intern. J. of Hematol.* 68:1-18 (1998); U.S. Patent No. 4,002,531; U.S. Patent No. 5,349,052; WO 95/06058; and WO 98/32466, the disclosures of each of which are incorporated herein by reference.

[0187] One system for attaching polyethylene glycol directly to amino acid residues of proteins without an intervening linker employs tresylated MPEG, which is produced by the modification of monmethoxy polyethylene glycol (MPEG) using tresylchloride ( $\text{ClSO}_2\text{CH}_2\text{CF}_3$ ). Upon reaction of protein with tresylated MPEG, polyethylene glycol is directly attached to amine groups of the protein. Thus, the invention includes protein-polyethylene glycol conjugates produced by reacting proteins of the invention with a polyethylene glycol molecule having a 2,2,2-trifluoroethane sulphonyl group.

[0188] Polyethylene glycol can also be attached to proteins using a number of different intervening linkers. For example, U.S. Patent No. 5,612,460, the entire disclosure of which is incorporated herein by reference, discloses urethane linkers for connecting polyethylene glycol to proteins. Protein-polyethylene glycol conjugates wherein the polyethylene glycol is attached to the protein by a linker can also be produced by reaction of proteins with compounds such as MPEG-succinimidylsuccinate, MPEG activated with 1,1'-carbonyldiimidazole, MPEG-2,4,5-trichloropenylcarbonate, MPEG-p-nitrophenolcarbonate, and various MPEG-succinate derivatives. A number of additional polyethylene glycol derivatives and reaction chemistries for attaching polyethylene glycol to proteins are described in International Publication No. WO 98/32466, the entire disclosure of which is incorporated herein by reference. Pegylated protein products produced using the reaction chemistries set out herein are included within the scope of the invention.

[0189] The number of polyethylene glycol moieties attached to each protein of the invention (i.e., the degree of substitution) may also vary. For example, the pegylated proteins of the invention may be linked, on average, to 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 17, 20, or more polyethylene glycol molecules. Similarly, the average degree of substitution within ranges such as 1-3, 2-4, 3-5, 4-6, 5-7, 6-8, 7-9, 8-10, 9-11, 10-12, 11-13, 12-14, 13-15, 14-16, 15-17, 16-18, 17-19, or 18-20 polyethylene glycol moieties per protein molecule. Methods for determining the degree of substitution are discussed, for example, in Delgado et al., *Crit. Rev. Thera. Drug Carrier Sys.* 9:249-304 (1992).

[0190] The polypeptides of the invention can be recovered and purified from chemical synthesis and recombinant cell cultures by standard methods which include, but are not limited to, ammonium sulfate or ethanol precipitation, acid extraction, anion or cation exchange chromatography, phosphocellulose chromatography, hydrophobic interaction chromatography, affinity chromatography, hydroxylapatite chromatography and lectin

chromatography. Most preferably, high performance liquid chromatography ("HPLC") is employed for purification. Well known techniques for refolding protein may be employed to regenerate active conformation when the polypeptide is denatured during isolation and/or purification.

[0191] The polypeptides of the invention may be in monomers or multimers (i.e., dimers, trimers, tetramers and higher multimers). Accordingly, the present invention relates to monomers and multimers of the polypeptides of the invention, their preparation, and compositions (preferably, Therapeutics) containing them. In specific embodiments, the polypeptides of the invention are monomers, dimers, trimers or tetramers. In additional embodiments, the multimers of the invention are at least dimers, at least trimers, or at least tetramers.

[0192] Multimers encompassed by the invention may be homomers or heteromers. As used herein, the term homomer refers to a multimer containing only polypeptides corresponding to a protein of the invention (e.g., the amino acid sequence of SEQ ID NO:Y, an amino acid sequence encoded by SEQ ID NO:X or the complement of SEQ ID NO:X, the amino acid sequence encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, and/or an amino acid sequence encoded by cDNA contained in Clone ID NO:Z (including fragments, variants, splice variants, and fusion proteins, corresponding to these as described herein)). These homomers may contain polypeptides having identical or different amino acid sequences. In a specific embodiment, a homomer of the invention is a multimer containing only polypeptides having an identical amino acid sequence. In another specific embodiment, a homomer of the invention is a multimer containing polypeptides having different amino acid sequences. In specific embodiments, the multimer of the invention is a homodimer (e.g., containing two polypeptides having identical or different amino acid sequences) or a homotrimer (e.g., containing three polypeptides having identical and/or different amino acid sequences). In additional embodiments, the homomeric multimer of the invention is at least a homodimer, at least a homotrimer, or at least a homotetramer.

[0193] As used herein, the term heteromer refers to a multimer containing one or more heterologous polypeptides (i.e., polypeptides of different proteins) in addition to the polypeptides of the invention. In a specific embodiment, the multimer of the invention is a heterodimer, a heterotrimer, or a heterotetramer. In additional embodiments, the heteromeric

multimer of the invention is at least a heterodimer, at least a heterotrimer, or at least a heterotetramer.

[0194] Multimers of the invention may be the result of hydrophobic, hydrophilic, ionic and/or covalent associations and/or may be indirectly linked by, for example, liposome formation. Thus, in one embodiment, multimers of the invention, such as, for example, homodimers or homotrimers, are formed when polypeptides of the invention contact one another in solution. In another embodiment, heteromultimers of the invention, such as, for example, heterotrimers or heterotetramers, are formed when polypeptides of the invention contact antibodies to the polypeptides of the invention (including antibodies to the heterologous polypeptide sequence in a fusion protein of the invention) in solution. In other embodiments, multimers of the invention are formed by covalent associations with and/or between the polypeptides of the invention. Such covalent associations may involve one or more amino acid residues contained in the polypeptide sequence (e.g., that recited in SEQ ID NO:Y, encoded by the portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, and/or encoded by the cDNA contained in Clone ID NO:Z). In one instance, the covalent associations are cross-linking between cysteine residues located within the polypeptide sequences which interact in the native (i.e., naturally occurring) polypeptide. In another instance, the covalent associations are the consequence of chemical or recombinant manipulation. Alternatively, such covalent associations may involve one or more amino acid residues contained in the heterologous polypeptide sequence in a fusion protein. In one example, covalent associations are between the heterologous sequence contained in a fusion protein of the invention (see, e.g., US Patent Number 5,478,925). In a specific example, the covalent associations are between the heterologous sequence contained in a Fc fusion protein of the invention (as described herein). In another specific example, covalent associations of fusion proteins of the invention are between heterologous polypeptide sequence from another protein that is capable of forming covalently associated multimers, such as for example, osteoprotegerin (see, e.g., International Publication NO: WO 98/49305, the contents of which are herein incorporated by reference in its entirety). In another embodiment, two or more polypeptides of the invention are joined through peptide linkers. Examples include those peptide linkers described in U.S. Pat. No. 5,073,627 (hereby incorporated by reference). Proteins comprising multiple polypeptides of the invention separated by peptide linkers may be produced using conventional recombinant DNA technology.

[0195] Another method for preparing multimer polypeptides of the invention involves use of polypeptides of the invention fused to a leucine zipper or isoleucine zipper polypeptide sequence. Leucine zipper and isoleucine zipper domains are polypeptides that promote multimerization of the proteins in which they are found. Leucine zippers were originally identified in several DNA-binding proteins (Landschulz et al., Science 240:1759, (1988)), and have since been found in a variety of different proteins. Among the known leucine zippers are naturally occurring peptides and derivatives thereof that dimerize or trimerize. Examples of leucine zipper domains suitable for producing soluble multimeric proteins of the invention are those described in PCT application WO 94/10308, hereby incorporated by reference. Recombinant fusion proteins comprising a polypeptide of the invention fused to a polypeptide sequence that dimerizes or trimerizes in solution are expressed in suitable host cells, and the resulting soluble multimeric fusion protein is recovered from the culture supernatant using techniques known in the art.

[0196] Trimeric polypeptides of the invention may offer the advantage of enhanced biological activity. Preferred leucine zipper moieties and isoleucine moieties are those that preferentially form trimers. One example is a leucine zipper derived from lung surfactant protein D (SPD), as described in Hoppe et al. (FEBS Letters 344:191, (1994)) and in U.S. patent application Ser. No. 08/446,922, hereby incorporated by reference. Other peptides derived from naturally occurring trimeric proteins may be employed in preparing trimeric polypeptides of the invention.

[0197] In another example, proteins of the invention are associated by interactions between Flag® polypeptide sequence contained in fusion proteins of the invention containing Flag® polypeptide sequence. In a further embodiment, proteins of the invention are associated by interactions between heterologous polypeptide sequence contained in Flag® fusion proteins of the invention and anti-Flag® antibody.

[0198] The multimers of the invention may be generated using chemical techniques known in the art. For example, polypeptides desired to be contained in the multimers of the invention may be chemically cross-linked using linker molecules and linker molecule length optimization techniques known in the art (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). Additionally, multimers of the invention may be generated using techniques known in the art to form one or more inter-molecule cross-links between the cysteine residues located within the sequence of the polypeptides



desired to be contained in the multimer (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). Further, polypeptides of the invention may be routinely modified by the addition of cysteine or biotin to the C-terminus or N-terminus of the polypeptide and techniques known in the art may be applied to generate multimers containing one or more of these modified polypeptides (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). Additionally, techniques known in the art may be applied to generate liposomes containing the polypeptide components desired to be contained in the multimer of the invention (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety).

[0199] Alternatively, multimers of the invention may be generated using genetic engineering techniques known in the art. In one embodiment, polypeptides contained in multimers of the invention are produced recombinantly using fusion protein technology described herein or otherwise known in the art (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). In a specific embodiment, polynucleotides coding for a homodimer of the invention are generated by ligating a polynucleotide sequence encoding a polypeptide of the invention to a sequence encoding a linker polypeptide and then further to a synthetic polynucleotide encoding the translated product of the polypeptide in the reverse orientation from the original C-terminus to the N-terminus (lacking the leader sequence) (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). In another embodiment, recombinant techniques described herein or otherwise known in the art are applied to generate recombinant polypeptides of the invention which contain a transmembrane domain (or hydrophobic or signal peptide) and which can be incorporated by membrane reconstitution techniques into liposomes (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety).

### **Antibodies**

[0200] Further polypeptides of the invention relate to antibodies and T-cell antigen receptors (TCR) which immunospecifically bind a polypeptide, polypeptide fragment, or variant of the invention (e.g., a polypeptide or fragment or variant of the amino acid sequence of SEQ ID NO:Y or a polypeptide encoded by the cDNA contained in Clone ID No:Z, and/or an epitope, of the present invention) as determined by immunoassays well known in the art

for assaying specific antibody-antigen binding. Antibodies of the invention include, but are not limited to, polyclonal, monoclonal, multispecific, human, humanized or chimeric antibodies, single chain antibodies, Fab fragments, F(ab') fragments, fragments produced by a Fab expression library, anti-idiotypic (anti-Id) antibodies (including, e.g., anti-Id antibodies to antibodies of the invention), intracellularly-made antibodies (i.e., intrabodies), and epitope-binding fragments of any of the above. The term "antibody," as used herein, refers to immunoglobulin molecules and immunologically active portions of immunoglobulin molecules, i.e., molecules that contain an antigen binding site that immunospecifically binds an antigen. The immunoglobulin molecules of the invention can be of any type (e.g., IgG, IgE, IgM, IgD, IgA and IgY), class (e.g., IgG1, IgG2, IgG3, IgG4, IgA1 and IgA2) or subclass of immunoglobulin molecule. In preferred embodiments, the immunoglobulin molecules of the invention are IgG1. In other preferred embodiments, the immunoglobulin molecules of the invention are IgG4.

[0201] Most preferably the antibodies are human antigen-binding antibody fragments of the present invention and include, but are not limited to, Fab, Fab' and F(ab')<sub>2</sub>, Fd, single-chain Fvs (scFv), single-chain antibodies, disulfide-linked Fvs (sdFv) and fragments comprising either a VL or VH domain. Antigen-binding antibody fragments, including single-chain antibodies, may comprise the variable region(s) alone or in combination with the entirety or a portion of the following: hinge region, CH1, CH2, and CH3 domains. Also included in the invention are antigen-binding fragments also comprising any combination of variable region(s) with a hinge region, CH1, CH2, and CH3 domains. The antibodies of the invention may be from any animal origin including birds and mammals. Preferably, the antibodies are human, murine (e.g., mouse and rat), donkey, ship rabbit, goat, guinea pig, camel, horse, or chicken. As used herein, "human" antibodies include antibodies having the amino acid sequence of a human immunoglobulin and include antibodies isolated from human immunoglobulin libraries or from animals transgenic for one or more human immunoglobulin and that do not express endogenous immunoglobulins, as described *infra* and, for example in, U.S. Patent No. 5,939,598 by Kucherlapati et al.

[0202] The antibodies of the present invention may be monospecific, bispecific, trispecific or of greater multispecificity. Multispecific antibodies may be specific for different epitopes of a polypeptide of the present invention or may be specific for both a polypeptide of the present invention as well as for a heterologous epitope, such as a heterologous polypeptide or

solid support material. See, e.g., PCT publications WO 93/17715; WO 92/08802; WO 91/00360; WO 92/05793; Tutt, et al., J. Immunol. 147:60-69 (1991); U.S. Patent Nos. 4,474,893; 4,714,681; 4,925,648; 5,573,920; 5,601,819; Kostelny et al., J. Immunol. 148:1547-1553 (1992).

[0203] Antibodies of the present invention may be described or specified in terms of the epitope(s) or portion(s) of a polypeptide of the present invention which they recognize or specifically bind. The epitope(s) or polypeptide portion(s) may be specified as described herein, e.g., by N-terminal and C-terminal positions, or by size in contiguous amino acid residues, or listed in the Tables and Figures. Preferred epitopes of the invention include the predicted epitopes shown in column 7 of Table 1, as well as polynucleotides that encode these epitopes. Antibodies which specifically bind any epitope or polypeptide of the present invention may also be excluded. Therefore, the present invention includes antibodies that specifically bind polypeptides of the present invention, and allows for the exclusion of the same.

[0204] Antibodies of the present invention may also be described or specified in terms of their cross-reactivity. Antibodies that do not bind any other analog, ortholog, or homolog of a polypeptide of the present invention are included. Antibodies that bind polypeptides with at least 95%, at least 90%, at least 85%, at least 80%, at least 75%, at least 70%, at least 65%, at least 60%, at least 55%, and at least 50% identity (as calculated using methods known in the art and described herein) to a polypeptide of the present invention are also included in the present invention. In specific embodiments, antibodies of the present invention cross-react with murine, rat and/or rabbit homologs of human proteins and the corresponding epitopes thereof. Antibodies that do not bind polypeptides with less than 95%, less than 90%, less than 85%, less than 80%, less than 75%, less than 70%, less than 65%, less than 60%, less than 55%, and less than 50% identity (as calculated using methods known in the art and described herein) to a polypeptide of the present invention are also included in the present invention. In a specific embodiment, the above-described cross-reactivity is with respect to any single specific antigenic or immunogenic polypeptide, or combination(s) of 2, 3, 4, 5, or more of the specific antigenic and/or immunogenic polypeptides disclosed herein. Further included in the present invention are antibodies which bind polypeptides encoded by polynucleotides which hybridize to a polynucleotide of the present invention under stringent hybridization conditions (as described herein). Antibodies of the present invention may also be described

or specified in terms of their binding affinity to a polypeptide of the invention. Preferred binding affinities include those with a dissociation constant or  $K_d$  less than  $5 \times 10^{-2}$  M,  $10^{-2}$  M,  $5 \times 10^{-3}$  M,  $10^{-3}$  M,  $5 \times 10^{-4}$  M,  $10^{-4}$  M,  $5 \times 10^{-5}$  M,  $10^{-5}$  M,  $5 \times 10^{-6}$  M,  $10^{-6}$  M,  $5 \times 10^{-7}$  M,  $10^{-7}$  M,  $5 \times 10^{-8}$  M,  $10^{-8}$  M,  $5 \times 10^{-9}$  M,  $10^{-9}$  M,  $5 \times 10^{-10}$  M,  $10^{-10}$  M,  $5 \times 10^{-11}$  M,  $10^{-11}$  M,  $5 \times 10^{-12}$  M,  $10^{-12}$  M,  $5 \times 10^{-13}$  M,  $10^{-13}$  M,  $5 \times 10^{-14}$  M,  $10^{-14}$  M,  $5 \times 10^{-15}$  M, or  $10^{-15}$  M.

[0205] The invention also provides antibodies that competitively inhibit binding of an antibody to an epitope of the invention as determined by any method known in the art for determining competitive binding, for example, the immunoassays described herein. In preferred embodiments, the antibody competitively inhibits binding to the epitope by at least 95%, at least 90%, at least 85 %, at least 80%, at least 75%, at least 70%, at least 60%, or at least 50%.

[0206] Antibodies of the present invention may act as agonists or antagonists of the polypeptides of the present invention. For example, the present invention includes antibodies which disrupt the receptor/ligand interactions with the polypeptides of the invention either partially or fully. Preferably, antibodies of the present invention bind an antigenic epitope disclosed herein, or a portion thereof. The invention features both receptor-specific antibodies and ligand-specific antibodies. The invention also features receptor-specific antibodies which do not prevent ligand binding but prevent receptor activation. Receptor activation (i.e., signaling) may be determined by techniques described herein or otherwise known in the art. For example, receptor activation can be determined by detecting the phosphorylation (e.g., tyrosine or serine/threonine) of the receptor or its substrate by immunoprecipitation followed by western blot analysis (for example, as described *supra*). In specific embodiments, antibodies are provided that inhibit ligand activity or receptor activity by at least 95%, at least 90%, at least 85%, at least 80%, at least 75%, at least 70%, at least 60%, or at least 50% of the activity in absence of the antibody.

[0207] The invention also features receptor-specific antibodies which both prevent ligand binding and receptor activation as well as antibodies that recognize the receptor-ligand complex, and, preferably, do not specifically recognize the unbound receptor or the unbound ligand. Likewise, included in the invention are neutralizing antibodies which bind the ligand and prevent binding of the ligand to the receptor, as well as antibodies which bind the ligand, thereby preventing receptor activation, but do not prevent the ligand from binding the receptor. Further included in the invention are antibodies which activate the receptor. These

antibodies may act as receptor agonists, i.e., potentiate or activate either all or a subset of the biological activities of the ligand-mediated receptor activation, for example, by inducing dimerization of the receptor. The antibodies may be specified as agonists, antagonists or inverse agonists for biological activities comprising the specific biological activities of the peptides of the invention disclosed herein. The above antibody agonists can be made using methods known in the art. See, e.g., PCT publication WO 96/40281; U.S. Patent No. 5,811,097; Deng et al., *Blood* 92(6):1981-1988 (1998); Chen et al., *Cancer Res.* 58(16):3668-3678 (1998); Harrop et al., *J. Immunol.* 161(4):1786-1794 (1998); Zhu et al., *Cancer Res.* 58(15):3209-3214 (1998); Yoon et al., *J. Immunol.* 160(7):3170-3179 (1998); Prat et al., *J. Cell. Sci.* 111(Pt2):237-247 (1998); Pitard et al., *J. Immunol. Methods* 205(2):177-190 (1997); Liautard et al., *Cytokine* 9(4):233-241 (1997); Carlson et al., *J. Biol. Chem.* 272(17):11295-11301 (1997); Taryman et al., *Neuron* 14(4):755-762 (1995); Muller et al., *Structure* 6(9):1153-1167 (1998); Bartunek et al., *Cytokine* 8(1):14-20 (1996) (which are all incorporated by reference herein in their entireties).

[0208] Antibodies of the present invention may be used, for example, to purify, detect, and target the polypeptides of the present invention, including both *in vitro* and *in vivo* diagnostic and therapeutic methods. For example, the antibodies have utility in immunoassays for qualitatively and quantitatively measuring levels of the polypeptides of the present invention in biological samples. See, e.g., Harlow et al., *Antibodies: A Laboratory Manual*, (Cold Spring Harbor Laboratory Press, 2nd ed. 1988); incorporated by reference herein in its entirety.

[0209] As discussed in more detail below, the antibodies of the present invention may be used either alone or in combination with other compositions. The antibodies may further be recombinantly fused to a heterologous polypeptide at the N- or C-terminus or chemically conjugated (including covalent and non-covalent conjugations) to polypeptides or other compositions. For example, antibodies of the present invention may be recombinantly fused or conjugated to molecules useful as labels in detection assays and effector molecules such as heterologous polypeptides, drugs, radionuclides, or toxins. See, e.g., PCT publications WO 92/08495; WO 91/14438; WO 89/12624; U.S. Patent No. 5,314,995; and EP 396,387; the disclosures of which are incorporated herein by reference in their entireties.

[0210] The antibodies of the invention include derivatives that are modified, i.e., by the covalent attachment of any type of molecule to the antibody such that covalent attachment

does not prevent the antibody from generating an anti-idiotypic response. For example, but not by way of limitation, the antibody derivatives include antibodies that have been modified, e.g., by glycosylation, acetylation, pegylation, phosphorylation, amidation, derivatization by known protecting/blocking groups, proteolytic cleavage, linkage to a cellular ligand or other protein, etc. Any of numerous chemical modifications may be carried out by known techniques, including, but not limited to specific chemical cleavage, acetylation, formylation, metabolic synthesis of tunicamycin, etc. Additionally, the derivative may contain one or more non-classical amino acids.

[0211] The antibodies of the present invention may be generated by any suitable method known in the art. Polyclonal antibodies to an antigen-of-interest can be produced by various procedures well known in the art. For example, a polypeptide of the invention can be administered to various host animals including, but not limited to, rabbits, mice, rats, etc. to induce the production of sera containing polyclonal antibodies specific for the antigen. Various adjuvants may be used to increase the immunological response, depending on the host species, and include but are not limited to, Freund's (complete and incomplete), mineral gels such as aluminum hydroxide, surface active substances such as lysolecithin, pluronic polyols, polyanions, peptides, oil emulsions, keyhole limpet hemocyanins, dinitrophenol, and potentially useful human adjuvants such as BCG (bacille Calmette-Guerin) and corynebacterium parvum. Such adjuvants are also well known in the art.

[0212] Monoclonal antibodies can be prepared using a wide variety of techniques known in the art including the use of hybridoma, recombinant, and phage display technologies, or a combination thereof. For example, monoclonal antibodies can be produced using hybridoma techniques including those known in the art and taught, for example, in Harlow et al., *Antibodies: A Laboratory Manual*, (Cold Spring Harbor Laboratory Press, 2nd ed. 1988); Hammerling, et al., in: *Monoclonal Antibodies and T-Cell Hybridomas* 563-681 (Elsevier, N.Y., 1981) (said references incorporated by reference in their entireties). The term "monoclonal antibody" as used herein is not limited to antibodies produced through hybridoma technology. The term "monoclonal antibody" refers to an antibody that is derived from a single clone, including any eukaryotic, prokaryotic, or phage clone, and not the method by which it is produced.

[0213] Methods for producing and screening for specific antibodies using hybridoma technology are routine and well known in the art and are discussed in detail in the Examples.

In a non-limiting example, mice can be immunized with a polypeptide of the invention or a cell expressing such peptide. Once an immune response is detected, e.g., antibodies specific for the antigen are detected in the mouse serum, the mouse spleen is harvested and splenocytes isolated. The splenocytes are then fused by well known techniques to any suitable myeloma cells, for example cells from cell line SP20 available from the ATCC. Hybridomas are selected and cloned by limited dilution. The hybridoma clones are then assayed by methods known in the art for cells that secrete antibodies capable of binding a polypeptide of the invention. Ascites fluid, which generally contains high levels of antibodies, can be generated by immunizing mice with positive hybridoma clones.

[0214] Accordingly, the present invention provides methods of generating monoclonal antibodies as well as antibodies produced by the method comprising culturing a hybridoma cell secreting an antibody of the invention wherein, preferably, the hybridoma is generated by fusing splenocytes isolated from a mouse immunized with an antigen of the invention with myeloma cells and then screening the hybridomas resulting from the fusion for hybridoma clones that secrete an antibody able to bind a polypeptide of the invention.

[0215] Another well known method for producing both polyclonal and monoclonal human B cell lines is transformation using Epstein Barr Virus (EBV). Protocols for generating EBV-transformed B cell lines are commonly known in the art, such as, for example, the protocol outlined in Chapter 7.22 of *Current Protocols in Immunology*, Coligan et al., Eds., 1994, John Wiley & Sons, NY, which is hereby incorporated in its entirety by reference. The source of B cells for transformation is commonly human peripheral blood, but B cells for transformation may also be derived from other sources including, but not limited to, lymph nodes, tonsil, spleen, tumor tissue, and infected tissues. Tissues are generally made into single cell suspensions prior to EBV transformation. Additionally, steps may be taken to either physically remove or inactivate T cells (e.g., by treatment with cyclosporin A) in B cell-containing samples, because T cells from individuals seropositive for anti-EBV antibodies can suppress B cell immortalization by EBV.

[0216] In general, the sample containing human B cells is inoculated with EBV, and cultured for 3-4 weeks. A typical source of EBV is the culture supernatant of the B95-8 cell line (ATCC #VR-1492). Physical signs of EBV transformation can generally be seen towards the end of the 3-4 week culture period. By phase-contrast microscopy, transformed cells may appear large, clear, hairy and tend to aggregate in tight clusters of cells. Initially,

EBV lines are generally polyclonal. However, over prolonged periods of cell cultures, EBV lines may become monoclonal or polyclonal as a result of the selective outgrowth of particular B cell clones. Alternatively, polyclonal EBV transformed lines may be subcloned (e.g., by limiting dilution culture) or fused with a suitable fusion partner and plated at limiting dilution to obtain monoclonal B cell lines. Suitable fusion partners for EBV transformed cell lines include mouse myeloma cell lines (e.g., SP2/0, X63-Ag8.653), heteromyeloma cell lines (human x mouse; e.g., SPAM-8, SBC-H20, and CB-F7), and human cell lines (e.g., GM 1500, SKO-007, RPMI 8226, and KR-4). Thus, the present invention also provides a method of generating polyclonal or monoclonal human antibodies against polypeptides of the invention or fragments thereof, comprising EBV-transformation of human B cells.

[0217] Antibody fragments which recognize specific epitopes may be generated by known techniques. For example, Fab and F(ab')<sub>2</sub> fragments of the invention may be produced by proteolytic cleavage of immunoglobulin molecules, using enzymes such as papain (to produce Fab fragments) or pepsin (to produce F(ab')<sub>2</sub> fragments). F(ab')<sub>2</sub> fragments contain the variable region, the light chain constant region and the CH1 domain of the heavy chain.

[0218] For example, the antibodies of the present invention can also be generated using various phage display methods known in the art. In phage display methods, functional antibody domains are displayed on the surface of phage particles which carry the polynucleotide sequences encoding them. In a particular embodiment, such phage can be utilized to display antigen binding domains expressed from a repertoire or combinatorial antibody library (e.g., human or murine). Phage expressing an antigen binding domain that binds the antigen of interest can be selected or identified with antigen, e.g., using labeled antigen or antigen bound or captured to a solid surface or bead. Phage used in these methods are typically filamentous phage including fd and M13 binding domains expressed from phage with Fab, Fv or disulfide stabilized Fv antibody domains recombinantly fused to either the phage gene III or gene VIII protein. Examples of phage display methods that can be used to make the antibodies of the present invention include those disclosed in Brinkman et al., J. Immunol. Methods 182:41-50 (1995); Ames et al., J. Immunol. Methods 184:177-186 (1995); Kettleborough et al., Eur. J. Immunol. 24:952-958 (1994); Persic et al., Gene 187 9-18 (1997); Burton et al., Advances in Immunology 57:191-280 (1994); PCT application No. PCT/GB91/01134; PCT publications WO 90/02809; WO 91/10737; WO 92/01047; WO



92/18619; WO 93/11236; WO 95/15982; WO 95/20401; and U.S. Patent Nos. 5,698,426; 5,223,409; 5,403,484; 5,580,717; 5,427,908; 5,750,753; 5,821,047; 5,571,698; 5,427,908; 5,516,637; 5,780,225; 5,658,727; 5,733,743 and 5,969,108; each of which is incorporated herein by reference in its entirety.

[0219] As described in the above references, after phage selection, the antibody coding regions from the phage can be isolated and used to generate whole antibodies, including human antibodies, or any other desired antigen binding fragment, and expressed in any desired host, including mammalian cells, insect cells, plant cells, yeast, and bacteria, e.g., as described in detail below. For example, techniques to recombinantly produce Fab, Fab' and F(ab')<sub>2</sub> fragments can also be employed using methods known in the art such as those disclosed in PCT publication WO 92/22324; Mullinax et al., *BioTechniques* 12(6):864-869 (1992); and Sawai et al., *AJRI* 34:26-34 (1995); and Better et al., *Science* 240:1041-1043 (1988) (said references incorporated by reference in their entireties).

[0220] Examples of techniques which can be used to produce single-chain Fvs and antibodies include those described in U.S. Patents 4,946,778 and 5,258,498; Huston et al., *Methods in Enzymology* 203:46-88 (1991); Shu et al., *PNAS* 90:7995-7999 (1993); and Skerra et al., *Science* 240:1038-1040 (1988). For some uses, including *in vivo* use of antibodies in humans and *in vitro* detection assays, it may be preferable to use chimeric, humanized, or human antibodies. A chimeric antibody is a molecule in which different portions of the antibody are derived from different animal species, such as antibodies having a variable region derived from a murine monoclonal antibody and a human immunoglobulin constant region. Methods for producing chimeric antibodies are known in the art. See e.g., Morrison, *Science* 229:1202 (1985); Oi et al., *BioTechniques* 4:214 (1986); Gillies et al., (1989) *J. Immunol. Methods* 125:191-202; U.S. Patent Nos. 5,807,715; 4,816,567; and 4,816,397, which are incorporated herein by reference in their entirety. Humanized antibodies are antibody molecules from non-human species antibody that binds the desired antigen having one or more complementarity determining regions (CDRs) from the non-human species and a framework regions from a human immunoglobulin molecule. Often, framework residues in the human framework regions will be substituted with the corresponding residue from the CDR donor antibody to alter, preferably improve, antigen binding. These framework substitutions are identified by methods well known in the art, e.g., by modeling of the interactions of the CDR and framework residues to identify framework

residues important for antigen binding and sequence comparison to identify unusual framework residues at particular positions. (See, e.g., Queen et al., U.S. Patent No. 5,585,089; Riechmann et al., *Nature* 332:323 (1988), which are incorporated herein by reference in their entireties.) Antibodies can be humanized using a variety of techniques known in the art including, for example, CDR-grafting (EP 239,400; PCT publication WO 91/09967; U.S. Patent Nos. 5,225,539; 5,530,101; and 5,585,089), veneering or resurfacing (EP 592,106; EP 519,596; Padlan, *Molecular Immunology* 28(4/5):489-498 (1991); Studnicka et al., *Protein Engineering* 7(6):805-814 (1994); Roguska et al., *PNAS* 91:969-973 (1994)), and chain shuffling (U.S. Patent No. 5,565,332).

[0221] Completely human antibodies are particularly desirable for therapeutic treatment of human patients. Human antibodies can be made by a variety of methods known in the art including phage display methods described above using antibody libraries derived from human immunoglobulin sequences. See also, U.S. Patent Nos. 4,444,887 and 4,716,111; and PCT publications WO 98/46645, WO 98/50433, WO 98/24893, WO 98/16654, WO 96/34096, WO 96/33735, and WO 91/10741; each of which is incorporated herein by reference in its entirety.

[0222] Human antibodies can also be produced using transgenic mice which are incapable of expressing functional endogenous immunoglobulins, but which can express human immunoglobulin genes. For example, the human heavy and light chain immunoglobulin gene complexes may be introduced randomly or by homologous recombination into mouse embryonic stem cells. Alternatively, the human variable region, constant region, and diversity region may be introduced into mouse embryonic stem cells in addition to the human heavy and light chain genes. The mouse heavy and light chain immunoglobulin genes may be rendered non-functional separately or simultaneously with the introduction of human immunoglobulin loci by homologous recombination. In particular, homozygous deletion of the JH region prevents endogenous antibody production. The modified embryonic stem cells are expanded and microinjected into blastocysts to produce chimeric mice. The chimeric mice are then bred to produce homozygous offspring which express human antibodies. The transgenic mice are immunized in the normal fashion with a selected antigen, e.g., all or a portion of a polypeptide of the invention. Monoclonal antibodies directed against the antigen can be obtained from the immunized, transgenic mice using conventional hybridoma technology. The human immunoglobulin transgenes harbored by the transgenic mice

rearrange during B cell differentiation, and subsequently undergo class switching and somatic mutation. Thus, using such a technique, it is possible to produce therapeutically useful IgG, IgA, IgM and IgE antibodies. For an overview of this technology for producing human antibodies, see Lonberg and Huszar, *Int. Rev. Immunol.* 13:65-93 (1995). For a detailed discussion of this technology for producing human antibodies and human monoclonal antibodies and protocols for producing such antibodies, see, e.g., PCT publications WO 98/24893; WO 92/01047; WO 96/34096; WO 96/33735; European Patent No. 0 598 877; U.S. Patent Nos. 5,413,923; 5,625,126; 5,633,425; 5,569,825; 5,661,016; 5,545,806; 5,814,318; 5,885,793; 5,916,771; 5,939,598; 6,075,181; and 6,114,598, which are incorporated by reference herein in their entirety. In addition, companies such as Abgenix, Inc. (Freemont, CA) and Genpharm (San Jose, CA) can be engaged to provide human antibodies directed against a selected antigen using technology similar to that described above.

[0223] Completely human antibodies which recognize a selected epitope can be generated using a technique referred to as "guided selection." In this approach a selected non-human monoclonal antibody, e.g., a mouse antibody, is used to guide the selection of a completely human antibody recognizing the same epitope. (Jespers et al., *Bio/technology* 12:899-903 (1988)).

[0224] Further, antibodies to the polypeptides of the invention can, in turn, be utilized to generate anti-idiotypic antibodies that "mimic" polypeptides of the invention using techniques well known to those skilled in the art. (See, e.g., Greenspan & Bona, *FASEB J.* 7(5):437-444; (1989) and Nissinoff, J. *Immunol.* 147(8):2429-2438 (1991)). For example, antibodies which bind to and competitively inhibit polypeptide multimerization and/or binding of a polypeptide of the invention to a ligand can be used to generate anti-idiotypes that "mimic" the polypeptide multimerization and/or binding domain and, as a consequence, bind to and neutralize polypeptide and/or its ligand. Such neutralizing anti-idiotypes or Fab fragments of such anti-idiotypes can be used in therapeutic regimens to neutralize polypeptide ligand(s)/receptor(s). For example, such anti-idiotypic antibodies can be used to bind a polypeptide of the invention and/or to bind its ligand(s)/receptor(s), and thereby block its biological activity. Alternatively, antibodies which bind to and enhance polypeptide multimerization and/or binding, and/or receptor/ligand multimerization, binding and/or signaling can be used to generate anti-idiotypes that function as agonists of a polypeptide of

the invention and/or its ligand/receptor. Such agonistic anti-idiotypes or Fab fragments of such anti-idiotypes can be used in therapeutic regimens as agonists of the polypeptides of the invention or its ligand(s)/receptor(s). For example, such anti-idiotypic antibodies can be used to bind a polypeptide of the invention and/or to bind its ligand(s)/receptor(s), and thereby promote or enhance its biological activity.

[0225] Intrabodies of the invention can be produced using methods known in the art, such as those disclosed and reviewed in Chen et al., Hum. Gene Ther. 5:595-601 (1994); Marasco, W.A., Gene Ther. 4:11-15 (1997); Rondon and Marasco, Annu. Rev. Microbiol. 51:257-283 (1997); Proba et al., J. Mol. Biol. 275:245-253 (1998); Cohen et al., Oncogene 17:2445-2456 (1998); Ohage and Steipe, J. Mol. Biol. 291:1119-1128 (1999); Ohage et al., J. Mol. Biol. 291:1129-1134 (1999); Wirtz and Steipe, Protein Sci. 8:2245-2250 (1999); Zhu et al., J. Immunol. Methods 231:207-222 (1999); and references cited therein.

#### *Polynucleotides Encoding Antibodies*

[0226] The invention further provides polynucleotides comprising a nucleotide sequence encoding an antibody of the invention and fragments thereof. The invention also encompasses polynucleotides that hybridize under stringent or alternatively, under lower stringency hybridization conditions, e.g., as defined *supra*, to polynucleotides that encode an antibody, preferably, that specifically binds to a polypeptide of the invention, preferably, an antibody that binds to a polypeptide having the amino acid sequence of SEQ ID NO:Y, to a polypeptide encoded by a portion of SEQ ID NO:X as defined in columns 8 and 9 of Table 2, and/or to a polypeptide encoded by the cDNA contained in Clone ID NO:Z.

[0227] The polynucleotides may be obtained, and the nucleotide sequence of the polynucleotides determined, by any method known in the art. For example, if the nucleotide sequence of the antibody is known, a polynucleotide encoding the antibody may be assembled from chemically synthesized oligonucleotides (e.g., as described in Kutmeier et al., BioTechniques 17:242 (1994)), which, briefly, involves the synthesis of overlapping oligonucleotides containing portions of the sequence encoding the antibody, annealing and ligating of those oligonucleotides, and then amplification of the ligated oligonucleotides by PCR.

[0228] Alternatively, a polynucleotide encoding an antibody may be generated from nucleic acid from a suitable source. If a clone containing a nucleic acid encoding a particular

antibody is not available, but the sequence of the antibody molecule is known, a nucleic acid encoding the immunoglobulin may be chemically synthesized or obtained from a suitable source (e.g., an antibody cDNA library, or a cDNA library generated from, or nucleic acid, preferably poly A+ RNA, isolated from, any tissue or cells expressing the antibody, such as hybridoma cells selected to express an antibody of the invention) by PCR amplification using synthetic primers hybridizable to the 3' and 5' ends of the sequence or by cloning using an oligonucleotide probe specific for the particular gene sequence to identify, e.g., a cDNA clone from a cDNA library that encodes the antibody. Amplified nucleic acids generated by PCR may then be cloned into replicable cloning vectors using any method well known in the art.

[0229] Once the nucleotide sequence and corresponding amino acid sequence of the antibody is determined, the nucleotide sequence of the antibody may be manipulated using methods well known in the art for the manipulation of nucleotide sequences, e.g., recombinant DNA techniques, site directed mutagenesis, PCR, etc. (see, for example, the techniques described in Sambrook et al., 1990, Molecular Cloning, A Laboratory Manual, 2d Ed., Cold Spring Harbor Laboratory, Cold Spring Harbor, NY and Ausubel et al., eds., 1998, Current Protocols in Molecular Biology, John Wiley & Sons, NY, which are both incorporated by reference herein in their entireties), to generate antibodies having a different amino acid sequence, for example to create amino acid substitutions, deletions, and/or insertions.

[0230] In a specific embodiment, the amino acid sequence of the heavy and/or light chain variable domains may be inspected to identify the sequences of the complementarity determining regions (CDRs) by methods that are well known in the art, e.g., by comparison to known amino acid sequences of other heavy and light chain variable regions to determine the regions of sequence hypervariability. Using routine recombinant DNA techniques, one or more of the CDRs may be inserted within framework regions, e.g., into human framework regions to humanize a non-human antibody, as described *supra*. The framework regions may be naturally occurring or consensus framework regions, and preferably human framework regions (see, e.g., Chothia et al., J. Mol. Biol. 278: 457-479 (1998) for a listing of human framework regions). Preferably, the polynucleotide generated by the combination of the framework regions and CDRs encodes an antibody that specifically binds a polypeptide of the invention. Preferably, as discussed *supra*, one or more amino acid substitutions may be

made within the framework regions, and, preferably, the amino acid substitutions improve binding of the antibody to its antigen. Additionally, such methods may be used to make amino acid substitutions or deletions of one or more variable region cysteine residues participating in an intrachain disulfide bond to generate antibody molecules lacking one or more intrachain disulfide bonds. Other alterations to the polynucleotide are encompassed by the present invention and within the skill of the art.

[0231] In addition, techniques developed for the production of "chimeric antibodies" (Morrison et al., Proc. Natl. Acad. Sci. 81:851-855 (1984); Neuberger et al., Nature 312:604-608 (1984); Takeda et al., Nature 314:452-454 (1985)) by splicing genes from a mouse antibody molecule of appropriate antigen specificity together with genes from a human antibody molecule of appropriate biological activity can be used. As described *supra*, a chimeric antibody is a molecule in which different portions are derived from different animal species, such as those having a variable region derived from a murine mAb and a human immunoglobulin constant region, e.g., humanized antibodies.

[0232] Alternatively, techniques described for the production of single chain antibodies (U.S. Patent No. 4,946,778; Bird, Science 242:423-42 (1988); Huston et al., Proc. Natl. Acad. Sci. USA 85:5879-5883 (1988); and Ward et al., Nature 334:544-54 (1989)) can be adapted to produce single chain antibodies. Single chain antibodies are formed by linking the heavy and light chain fragments of the Fv region via an amino acid bridge, resulting in a single chain polypeptide. Techniques for the assembly of functional Fv fragments in *E. coli* may also be used (Skerra et al., Science 242:1038-1041 (1988)).

#### *Methods of Producing Antibodies*

[0233] The antibodies of the invention can be produced by any method known in the art for the synthesis of antibodies, in particular, by chemical synthesis or preferably, by recombinant expression techniques. Methods of producing antibodies include, but are not limited to, hybridoma technology, EBV transformation, and other methods discussed herein as well as through the use recombinant DNA technology, as discussed below.

[0234] Recombinant expression of an antibody of the invention, or fragment, derivative or analog thereof, (e.g., a heavy or light chain of an antibody of the invention or a single chain antibody of the invention), requires construction of an expression vector containing a polynucleotide that encodes the antibody. Once a polynucleotide encoding an antibody

molecule or a heavy or light chain of an antibody, or portion thereof (preferably containing the heavy or light chain variable domain), of the invention has been obtained, the vector for the production of the antibody molecule may be produced by recombinant DNA technology using techniques well known in the art. Thus, methods for preparing a protein by expressing a polynucleotide containing an antibody encoding nucleotide sequence are described herein. Methods which are well known to those skilled in the art can be used to construct expression vectors containing antibody coding sequences and appropriate transcriptional and translational control signals. These methods include, for example, *in vitro* recombinant DNA techniques, synthetic techniques, and *in vivo* genetic recombination. The invention, thus, provides replicable vectors comprising a nucleotide sequence encoding an antibody molecule of the invention, or a heavy or light chain thereof, or a heavy or light chain variable domain, operably linked to a promoter. Such vectors may include the nucleotide sequence encoding the constant region of the antibody molecule (see, e.g., PCT Publication WO 86/05807; PCT Publication WO 89/01036; and U.S. Patent No. 5,122,464) and the variable domain of the antibody may be cloned into such a vector for expression of the entire heavy or light chain.

[0235] The expression vector is transferred to a host cell by conventional techniques and the transfected cells are then cultured by conventional techniques to produce an antibody of the invention. Thus, the invention includes host cells containing a polynucleotide encoding an antibody of the invention, or a heavy or light chain thereof, or a single chain antibody of the invention, operably linked to a heterologous promoter. In preferred embodiments for the expression of double-chained antibodies, vectors encoding both the heavy and light chains may be co-expressed in the host cell for expression of the entire immunoglobulin molecule, as detailed below.

[0236] A variety of host-expression vector systems may be utilized to express the antibody molecules of the invention. Such host-expression systems represent vehicles by which the coding sequences of interest may be produced and subsequently purified, but also represent cells which may, when transformed or transfected with the appropriate nucleotide coding sequences, express an antibody molecule of the invention *in situ*. These include but are not limited to microorganisms such as bacteria (e.g., *E. coli*, *B. subtilis*) transformed with recombinant bacteriophage DNA, plasmid DNA or cosmid DNA expression vectors containing antibody coding sequences; yeast (e.g., *Saccharomyces*, *Pichia*) transformed with recombinant yeast expression vectors containing antibody coding sequences; insect cell

systems infected with recombinant virus expression vectors (e.g., baculovirus) containing antibody coding sequences; plant cell systems infected with recombinant virus expression vectors (e.g., cauliflower mosaic virus, CaMV; tobacco mosaic virus, TMV) or transformed with recombinant plasmid expression vectors (e.g., Ti plasmid) containing antibody coding sequences; or mammalian cell systems (e.g., COS, CHO, BHK, 293, 3T3 cells) harboring recombinant expression constructs containing promoters derived from the genome of mammalian cells (e.g., metallothionein promoter) or from mammalian viruses (e.g., the adenovirus late promoter; the vaccinia virus 7.5K promoter). Preferably, bacterial cells such as *Escherichia coli*, and more preferably, eukaryotic cells, especially for the expression of whole recombinant antibody molecule, are used for the expression of a recombinant antibody molecule. For example, mammalian cells such as Chinese hamster ovary cells (CHO), in conjunction with a vector such as the major intermediate early gene promoter element from human cytomegalovirus is an effective expression system for antibodies (Foecking et al., *Gene* 45:101 (1986); Cockett et al., *Bio/Technology* 8:2 (1990)).

[0237] In bacterial systems, a number of expression vectors may be advantageously selected depending upon the use intended for the antibody molecule being expressed. For example, when a large quantity of such a protein is to be produced, for the generation of pharmaceutical compositions of an antibody molecule, vectors which direct the expression of high levels of fusion protein products that are readily purified may be desirable. Such vectors include, but are not limited, to the *E. coli* expression vector pUR278 (Ruther et al., *EMBO J.* 2:1791 (1983)), in which the antibody coding sequence may be ligated individually into the vector in frame with the lac Z coding region so that a fusion protein is produced; pIN vectors (Inouye & Inouye, *Nucleic Acids Res.* 13:3101-3109 (1985); Van Heeke & Schuster, *J. Biol. Chem.* 24:5503-5509 (1989)); and the like. pGEX vectors may also be used to express foreign polypeptides as fusion proteins with glutathione S-transferase (GST). In general, such fusion proteins are soluble and can easily be purified from lysed cells by adsorption and binding to matrix glutathione-agarose beads followed by elution in the presence of free glutathione. The pGEX vectors are designed to include thrombin or factor Xa protease cleavage sites so that the cloned target gene product can be released from the GST moiety.

[0238] In an insect system, *Autographa californica* nuclear polyhedrosis virus (AcNPV) is used as a vector to express foreign genes. The virus grows in *Spodoptera frugiperda* cells.



The antibody coding sequence may be cloned individually into non-essential regions (for example the polyhedrin gene) of the virus and placed under control of an AcNPV promoter (for example the polyhedrin promoter).

[0239] In mammalian host cells, a number of viral-based expression systems may be utilized. In cases where an adenovirus is used as an expression vector, the antibody coding sequence of interest may be ligated to an adenovirus transcription/translation control complex, e.g., the late promoter and tripartite leader sequence. This chimeric gene may then be inserted in the adenovirus genome by *in vitro* or *in vivo* recombination. Insertion in a non-essential region of the viral genome (e.g., region E1 or E3) will result in a recombinant virus that is viable and capable of expressing the antibody molecule in infected hosts. (e.g., see Logan & Shenk, Proc. Natl. Acad. Sci. USA 81:355-359 (1984)). Specific initiation signals may also be required for efficient translation of inserted antibody coding sequences. These signals include the ATG initiation codon and adjacent sequences. Furthermore, the initiation codon must be in phase with the reading frame of the desired coding sequence to ensure translation of the entire insert. These exogenous translational control signals and initiation codons can be of a variety of origins, both natural and synthetic. The efficiency of expression may be enhanced by the inclusion of appropriate transcription enhancer elements, transcription terminators, etc. (see Bittner et al., Methods in Enzymol. 153:51-544 (1987)).

[0240] In addition, a host cell strain may be chosen which modulates the expression of the inserted sequences, or modifies and processes the gene product in the specific fashion desired. Such modifications (e.g., glycosylation) and processing (e.g., cleavage) of protein products may be important for the function of the protein. Different host cells have characteristic and specific mechanisms for the post-translational processing and modification of proteins and gene products. Appropriate cell lines or host systems can be chosen to ensure the correct modification and processing of the foreign protein expressed. To this end, eukaryotic host cells which possess the cellular machinery for proper processing of the primary transcript, glycosylation, and phosphorylation of the gene product may be used. Such mammalian host cells include but are not limited to CHO, VERY, BHK, Hela, COS, MDCK, 293, 3T3, WI38, and in particular, breast cancer cell lines such as, for example, BT483, Hs578T, HTB2, BT20 and T47D, and normal mammary gland cell line such as, for example, CRL7030 and Hs578Bst.

[0241] For long-term, high-yield production of recombinant proteins, stable expression is preferred. For example, cell lines which stably express the antibody molecule may be engineered. Rather than using expression vectors which contain viral origins of replication, host cells can be transformed with DNA controlled by appropriate expression control elements (e.g., promoter, enhancer, sequences, transcription terminators, polyadenylation sites, etc.), and a selectable marker. Following the introduction of the foreign DNA, engineered cells may be allowed to grow for 1-2 days in an enriched media, and then are switched to a selective media. The selectable marker in the recombinant plasmid confers resistance to the selection and allows cells to stably integrate the plasmid into their chromosomes and grow to form foci which in turn can be cloned and expanded into cell lines. This method may advantageously be used to engineer cell lines which express the antibody molecule. Such engineered cell lines may be particularly useful in screening and evaluation of compounds that interact directly or indirectly with the antibody molecule.

[0242] A number of selection systems may be used, including but not limited to the herpes simplex virus thymidine kinase (Wigler et al., Cell 11:223 (1977)), hypoxanthine-guanine phosphoribosyltransferase (Szybalska & Szybalski, Proc. Natl. Acad. Sci. USA 48:202 (1992)), and adenine phosphoribosyltransferase (Lowy et al., Cell 22:817 (1980)) genes can be employed in tk-, hgp<sup>r</sup>t- or ap<sup>r</sup>t- cells, respectively. Also, antimetabolite resistance can be used as the basis of selection for the following genes: dhfr, which confers resistance to methotrexate (Wigler et al., Natl. Acad. Sci. USA 77:357 (1980); O'Hare et al., Proc. Natl. Acad. Sci. USA 78:1527 (1981)); gpt, which confers resistance to mycophenolic acid (Mulligan & Berg, Proc. Natl. Acad. Sci. USA 78:2072 (1981)); neo, which confers resistance to the aminoglycoside G-418 Clinical Pharmacy 12:488-505; Wu and Wu, Biotherapy 3:87-95 (1991); Tolstoshev, Ann. Rev. Pharmacol. Toxicol. 32:573-596 (1993); Mulligan, Science 260:926-932 (1993); and Morgan and Anderson, Ann. Rev. Biochem. 62:191-217 (1993); May, 1993, TIB TECH 11(5):155-215 (1993)); and hyg<sup>r</sup>, which confers resistance to hygromycin (Santerre et al., Gene 30:147 (1984)). Methods commonly known in the art of recombinant DNA technology may be routinely applied to select the desired recombinant clone, and such methods are described, for example, in Ausubel et al. (eds.), Current Protocols in Molecular Biology, John Wiley & Sons, NY (1993); Kriegler, Gene Transfer and Expression, A Laboratory Manual, Stockton Press, NY (1990); and in Chapters 12 and 13, Dracopoli et al. (eds), Current Protocols in Human Genetics, John Wiley & Sons, 1796

NY (1994); Colberre-Garapin et al., J. Mol. Biol. 150:1 (1981), which are incorporated by reference herein in their entireties.

[0243] The expression levels of an antibody molecule can be increased by vector amplification (for a review, see Bebbington and Hentschel, The use of vectors based on gene amplification for the expression of cloned genes in mammalian cells in DNA cloning, Vol.3. (Academic Press, New York, 1987)). When a marker in the vector system expressing antibody is amplifiable, increase in the level of inhibitor present in culture of host cell will increase the number of copies of the marker gene. Since the amplified region is associated with the antibody gene, production of the antibody will also increase (Crouse et al., Mol. Cell. Biol. 3:257 (1983)).

[0244] Vectors which use glutamine synthase (GS) or DHFR as the selectable markers can be amplified in the presence of the drugs methionine sulfoximine or methotrexate, respectively. An advantage of glutamine synthase based vectors are the availability of cell lines (e.g., the murine myeloma cell line, NS0) which are glutamine synthase negative. Glutamine synthase expression systems can also function in glutamine synthase expressing cells (e.g. Chinese Hamster Ovary (CHO) cells) by providing additional inhibitor to prevent the functioning of the endogenous gene. A glutamine synthase expression system and components thereof are detailed in PCT publications: WO87/04462; WO86/05807; WO89/01036; WO89/10404; and WO91/06657 which are incorporated in their entireties by reference herein. Additionally, glutamine synthase expression vectors that may be used according to the present invention are commercially available from suppliers, including, for example Lonza Biologics, Inc. (Portsmouth, NH). Expression and production of monoclonal antibodies using a GS expression system in murine myeloma cells is described in Bebbington et al., *Bio/technology* 10:169(1992) and in Biblia and Robinson *Biotechnol. Prog.* 11:1 (1995) which are incorporated in their entireties by reference herein.

[0245] The host cell may be co-transfected with two expression vectors of the invention, the first vector encoding a heavy chain derived polypeptide and the second vector encoding a light chain derived polypeptide. The two vectors may contain identical selectable markers which enable equal expression of heavy and light chain polypeptides. Alternatively, a single vector may be used which encodes, and is capable of expressing, both heavy and light chain polypeptides. In such situations, the light chain should be placed before the heavy chain to avoid an excess of toxic free heavy chain (Proudfoot, *Nature* 322:52 (1986); Kohler, *Proc.*

Natl. Acad. Sci. USA 77:2197 (1980)). The coding sequences for the heavy and light chains may comprise cDNA or genomic DNA.

[0246] Once an antibody molecule of the invention has been produced by an animal, chemically synthesized, or recombinantly expressed, it may be purified by any method known in the art for purification of an immunoglobulin molecule, for example, by chromatography (e.g., ion exchange, affinity, particularly by affinity for the specific antigen after Protein A, and sizing column chromatography), centrifugation, differential solubility, or by any other standard technique for the purification of proteins. In addition, the antibodies of the present invention or fragments thereof can be fused to heterologous polypeptide sequences described herein or otherwise known in the art, to facilitate purification.

[0247] The present invention encompasses antibodies recombinantly fused or chemically conjugated (including both covalently and non-covalently conjugations) to a polypeptide (or portion thereof, preferably at least 10, 20, 30, 40, 50, 60, 70, 80, 90 or 100 amino acids of the polypeptide) of the present invention to generate fusion proteins. The fusion does not necessarily need to be direct, but may occur through linker sequences. The antibodies may be specific for antigens other than polypeptides (or portion thereof, preferably at least 10, 20, 30, 40, 50, 60, 70, 80, 90 or 100 amino acids of the polypeptide) of the present invention. For example, antibodies may be used to target the polypeptides of the present invention to particular cell types, either *in vitro* or *in vivo*, by fusing or conjugating the polypeptides of the present invention to antibodies specific for particular cell surface receptors. Antibodies fused or conjugated to the polypeptides of the present invention may also be used in *in vitro* immunoassays and purification methods using methods known in the art. See e.g., Harbor et al., *supra*, and PCT publication WO 93/21232; EP 439,095; Naramura et al., Immunol. Lett. 39:91-99 (1994); U.S. Patent 5,474,981; Gillies et al., PNAS 89:1428-1432 (1992); Fell et al., J. Immunol. 146:2446-2452 (1991), which are incorporated by reference in their entireties.

[0248] The present invention further includes compositions comprising the polypeptides of the present invention fused or conjugated to antibody domains other than the variable regions. For example, the polypeptides of the present invention may be fused or conjugated to an antibody Fc region, or portion thereof. The antibody portion fused to a polypeptide of the present invention may comprise the constant region, hinge region, CH1 domain, CH2 domain, and CH3 domain or any combination of whole domains or portions thereof. The

polypeptides may also be fused or conjugated to the above antibody portions to form multimers. For example, Fc portions fused to the polypeptides of the present invention can form dimers through disulfide bonding between the Fc portions. Higher multimeric forms can be made by fusing the polypeptides to portions of IgA and IgM. Methods for fusing or conjugating the polypeptides of the present invention to antibody portions are known in the art. See, e.g., U.S. Patent Nos. 5,336,603; 5,622,929; 5,359,046; 5,349,053; 5,447,851; 5,112,946; EP 307,434; EP 367,166; PCT publications WO 96/04388; WO 91/06570; Ashkenazi et al., Proc. Natl. Acad. Sci. USA 88:10535-10539 (1991); Zheng et al., J. Immunol. 154:5590-5600 (1995); and Vil et al., Proc. Natl. Acad. Sci. USA 89:11337-11341 (1992) (said references incorporated by reference in their entireties).

[0249] As discussed, *supra*, the polypeptides corresponding to a polypeptide, polypeptide fragment, or a variant of SEQ ID NO:Y may be fused or conjugated to the above antibody portions to increase the *in vivo* half life of the polypeptides or for use in immunoassays using methods known in the art. Further, the polypeptides corresponding to SEQ ID NO:Y may be fused or conjugated to the above antibody portions to facilitate purification. One reported example describes chimeric proteins consisting of the first two domains of the human CD4-polypeptide and various domains of the constant regions of the heavy or light chains of mammalian immunoglobulins. See EP 394,827; and Traunecker et al., Nature 331:84-86 (1988). The polypeptides of the present invention fused or conjugated to an antibody having disulfide-linked dimeric structures (due to the IgG) may also be more efficient in binding and neutralizing other molecules, than the monomeric secreted protein or protein fragment alone. See, for example, Fountoulakis et al., J. Biochem. 270:3958-3964 (1995). In many cases, the Fc part in a fusion protein is beneficial in therapy and diagnosis, and thus can result in, for example, improved pharmacokinetic properties. See, for example, EP A 232,262. Alternatively, deleting the Fc part after the fusion protein has been expressed, detected, and purified, would be desired. For example, the Fc portion may hinder therapy and diagnosis if the fusion protein is used as an antigen for immunizations. In drug discovery, for example, human proteins, such as hIL-5, have been fused with Fc portions for the purpose of high-throughput screening assays to identify antagonists of hIL-5. (See, Bennett et al., J. Molecular Recognition 8:52-58 (1995); Johanson et al., J. Biol. Chem. 270:9459-9471 (1995)).

[0250] Moreover, the antibodies or fragments thereof of the present invention can be fused to marker sequences, such as a peptide to facilitate purification. In preferred embodiments, the marker amino acid sequence is a hexa-histidine peptide, such as the tag provided in a pQE vector (QIAGEN, Inc., 9259 Eton Avenue, Chatsworth, CA, 91311), among others, many of which are commercially available. As described in Gentz et al., Proc. Natl. Acad. Sci. USA 86:821-824 (1989), for instance, hexa-histidine provides for convenient purification of the fusion protein. Other peptide tags useful for purification include, but are not limited to, the "HA" tag, which corresponds to an epitope derived from the influenza hemagglutinin protein (Wilson et al., Cell 37:767 (1984)) and the "flag" tag.

[0251] The present invention further encompasses antibodies or fragments thereof conjugated to a diagnostic or therapeutic agent. The antibodies can be used diagnostically to, for example, monitor the development or progression of a tumor as part of a clinical testing procedure to, e.g., determine the efficacy of a given treatment regimen. Detection can be facilitated by coupling the antibody to a detectable substance. Examples of detectable substances include various enzymes, prosthetic groups, fluorescent materials, luminescent materials, bioluminescent materials, radioactive materials, positron emitting metals using various positron emission tomographies, and nonradioactive paramagnetic metal ions. The detectable substance may be coupled or conjugated either directly to the antibody (or fragment thereof) or indirectly, through an intermediate (such as, for example, a linker known in the art) using techniques known in the art. See, for example, U.S. Patent No. 4,741,900 for metal ions which can be conjugated to antibodies for use as diagnostics according to the present invention. Examples of suitable enzymes include horseradish peroxidase, alkaline phosphatase, beta-galactosidase, or acetylcholinesterase; examples of suitable prosthetic group complexes include streptavidin/biotin and avidin/biotin; examples of suitable fluorescent materials include umbelliferone, fluorescein, fluorescein isothiocyanate, rhodamine, dichlorotriazinylamine fluorescein, dansyl chloride or phycoerythrin; an example of a luminescent material includes luminol; examples of bioluminescent materials include luciferase, luciferin, and aequorin; and examples of suitable radioactive material include  $^{125}\text{I}$ ,  $^{131}\text{I}$ ,  $^{111}\text{In}$  or  $^{99}\text{Tc}$ .

[0252] Further, an antibody or fragment thereof may be conjugated to a therapeutic moiety such as a cytotoxin, e.g., a cytostatic or cytotoxic agent, a therapeutic agent or a radioactive metal ion, e.g., alpha-emitters such as, for example,  $^{213}\text{Bi}$ . A cytotoxin or

cytotoxic agent includes any agent that is detrimental to cells. Examples include paclitaxol, cytochalasin B, gramicidin D, ethidium bromide, emetine, mitomycin, etoposide, tenoposide, vincristine, vinblastine, colchicin, doxorubicin, daunorubicin, dihydroxy anthracin dione, mitoxantrone, mithramycin, actinomycin D, 1-dehydrotestosterone, glucocorticoids, procaine, tetracaine, lidocaine, propranolol, and puromycin and analogs or homologs thereof. Therapeutic agents include, but are not limited to, antimetabolites (e.g., methotrexate, 6-mercaptopurine, 6-thioguanine, cytarabine, 5-fluorouracil decarbazine), alkylating agents (e.g., mechlorethamine, thioepa chlorambucil, melphalan, carmustine (BSNU) and lomustine (CCNU), cyclophosphamide, busulfan, dibromomannitol, streptozotocin, mitomycin C, and cis- dichlorodiamine platinum (II) (DDP) cisplatin), anthracyclines (e.g., daunorubicin (formerly daunomycin) and doxorubicin), antibiotics (e.g., dactinomycin (formerly actinomycin), bleomycin, mithramycin, and anthramycin (AMC)), and anti-mitotic agents (e.g., vincristine and vinblastine).

[0253] The conjugates of the invention can be used for modifying a given biological response, the therapeutic agent or drug moiety is not to be construed as limited to classical chemical therapeutic agents. For example, the drug moiety may be a protein or polypeptide possessing a desired biological activity. Such proteins may include, for example, a toxin such as abrin, ricin A, pseudomonas exotoxin, or diphtheria toxin; a protein such as tumor necrosis factor,  $\alpha$ -interferon,  $\beta$ -interferon, nerve growth factor, platelet derived growth factor, tissue plasminogen activator, an apoptotic agent, e.g., TNF- $\alpha$ , TNF- $\beta$ , AIM I (See, International Publication No. WO 97/33899), AIM II (See, International Publication No. WO 97/34911), Fas Ligand (Takahashi *et al.*, *Int. Immunol.*, 6:1567-1574 (1994)), VEGI (See, International Publication No. WO 99/23105), a thrombotic agent or an anti- angiogenic agent, e.g., angiostatin or endostatin; or, biological response modifiers such as, for example, lymphokines, interleukin-1 ("IL-1"), interleukin-2 ("IL-2"), interleukin-6 ("IL-6"), granulocyte macrophage colony stimulating factor ("GM-CSF"), granulocyte colony stimulating factor ("G-CSF"), or other growth factors.

[0254] Antibodies may also be attached to solid supports, which are particularly useful for immunoassays or purification of the target antigen. Such solid supports include, but are not limited to, glass, cellulose, polyacrylamide, nylon, polystyrene, polyvinyl chloride or polypropylene.

[0255] Techniques for conjugating such therapeutic moiety to antibodies are well known. See, for example, Arnon et al., "Monoclonal Antibodies For Immunotargeting Of Drugs In Cancer Therapy", in *Monoclonal Antibodies And Cancer Therapy*, Reisfeld et al. (eds.), pp. 243-56 (Alan R. Liss, Inc. 1985); Hellstrom et al., "Antibodies For Drug Delivery", in *Controlled Drug Delivery* (2nd Ed.), Robinson et al. (eds.), pp. 623-53 (Marcel Dekker, Inc. 1987); Thorpe, "Antibody Carriers Of Cytotoxic Agents In Cancer Therapy: A Review", in *Monoclonal Antibodies '84: Biological And Clinical Applications*, Pinchera et al. (eds.), pp. 475-506 (1985); "Analysis, Results, And Future Prospective Of The Therapeutic Use Of Radiolabeled Antibody In Cancer Therapy", in *Monoclonal Antibodies For Cancer Detection And Therapy*, Baldwin et al. (eds.), pp. 303-16 (Academic Press 1985), and Thorpe et al., "The Preparation And Cytotoxic Properties Of Antibody-Toxin Conjugates", *Immunol. Rev.* 62:119-58 (1982).

[0256] Alternatively, an antibody can be conjugated to a second antibody to form an antibody heteroconjugate as described by Segal in U.S. Patent No. 4,676,980, which is incorporated herein by reference in its entirety.

[0257] An antibody, with or without a therapeutic moiety conjugated to it, administered alone or in combination with cytotoxic factor(s) and/or cytokine(s) can be used as a therapeutic.

#### *Immunophenotyping*

[0258] The antibodies of the invention may be utilized for immunophenotyping of cell lines and biological samples. Translation products of the gene of the present invention may be useful as cell-specific markers, or more specifically as cellular markers that are differentially expressed at various stages of differentiation and/or maturation of particular cell types. Monoclonal antibodies directed against a specific epitope, or combination of epitopes, will allow for the screening of cellular populations expressing the marker. Various techniques can be utilized using monoclonal antibodies to screen for cellular populations expressing the marker(s), and include magnetic separation using antibody-coated magnetic beads, "panning" with antibody attached to a solid matrix (i.e., plate), and flow cytometry (See, e.g., U.S. Patent 5,985,660; and Morrison *et al.*, *Cell*, 96:737-49 (1999)).

[0259] These techniques allow for the screening of particular populations of cells, such as might be found with hematological malignancies (i.e. minimal residual disease (MRD) in



acute leukemic patients) and "non-self" cells in transplantations to prevent Graft-versus-Host Disease (GVHD). Alternatively, these techniques allow for the screening of hematopoietic stem and progenitor cells capable of undergoing proliferation and/or differentiation, as might be found in human umbilical cord blood.

#### *Assays For Antibody Binding*

[0260] The antibodies of the invention may be assayed for immunospecific binding by any method known in the art. The immunoassays which can be used include but are not limited to competitive and non-competitive assay systems using techniques such as western blots, radioimmunoassays, ELISA (enzyme linked immunosorbent assay), "sandwich" immunoassays, immunoprecipitation assays, precipitin reactions, gel diffusion precipitin reactions, immunodiffusion assays, agglutination assays, complement-fixation assays, immunoradiometric assays, fluorescent immunoassays, and protein A immunoassays, to name but a few. Such assays are routine and well known in the art (see, e.g., Ausubel et al, eds, 1994, Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York, which is incorporated by reference herein in its entirety). Exemplary immunoassays are described briefly below (but are not intended by way of limitation).

[0261] Immunoprecipitation protocols generally comprise lysing a population of cells in a lysis buffer such as RIPA buffer (1% NP-40 or Triton X- 100, 1% sodium deoxycholate, 0.1% SDS, 0.15 M NaCl, 0.01 M sodium phosphate at pH 7.2, 1% Trasylol) supplemented with protein phosphatase and/or protease inhibitors (e.g., EDTA, PMSF, aprotinin, sodium vanadate), adding the antibody of interest to the cell lysate, incubating for a period of time (e.g., 1-4 hours) at 4° C, adding protein A and/or protein G sepharose beads to the cell lysate, incubating for about an hour or more at 4° C, washing the beads in lysis buffer and resuspending the beads in SDS/sample buffer. The ability of the antibody of interest to immunoprecipitate a particular antigen can be assessed by, e.g., western blot analysis. One of skill in the art would be knowledgeable as to the parameters that can be modified to increase the binding of the antibody to an antigen and decrease the background (e.g., pre-clearing the cell lysate with sepharose beads). For further discussion regarding immunoprecipitation protocols see, e.g., Ausubel et al., eds., (1994), Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York, section 10.16.1.

[0262] Western blot analysis generally comprises preparing protein samples, electrophoresis of the protein samples in a polyacrylamide gel (e.g., 8%- 20% SDS-PAGE depending on the molecular weight of the antigen), transferring the protein sample from the polyacrylamide gel to a membrane such as nitrocellulose, PVDF or nylon, blocking the membrane in blocking solution (e.g., PBS with 3% BSA or non-fat milk), washing the membrane in washing buffer (e.g., PBS-Tween 20), blocking the membrane with primary antibody (the antibody of interest) diluted in blocking buffer, washing the membrane in washing buffer, blocking the membrane with a secondary antibody (which recognizes the primary antibody, e.g., an anti-human antibody) conjugated to an enzymatic substrate (e.g., horseradish peroxidase or alkaline phosphatase) or radioactive molecule (e.g.,  $^{32}\text{P}$  or  $^{125}\text{I}$ ) diluted in blocking buffer, washing the membrane in wash buffer, and detecting the presence of the antigen. One of skill in the art would be knowledgeable as to the parameters that can be modified to increase the signal detected and to reduce the background noise. For further discussion regarding western blot protocols see, e.g., Ausubel et al, eds, (1994), Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York, section 10.8.1.

[0263] ELISAs comprise preparing antigen, coating the well of a 96 well microtiter plate with the antigen, adding the antibody of interest conjugated to a detectable compound such as an enzymatic substrate (e.g., horseradish peroxidase or alkaline phosphatase) to the well and incubating for a period of time, and detecting the presence of the antigen. In ELISAs the antibody of interest does not have to be conjugated to a detectable compound; instead, a second antibody (which recognizes the antibody of interest) conjugated to a detectable compound may be added to the well. Further, instead of coating the well with the antigen, the antibody may be coated to the well. In this case, a second antibody conjugated to a detectable compound may be added following the addition of the antigen of interest to the coated well. One of skill in the art would be knowledgeable as to the parameters that can be modified to increase the signal detected as well as other variations of ELISAs known in the art. For further discussion regarding ELISAs see, e.g., Ausubel et al, eds, (1994), Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York, section 11.2.1.

[0264] The binding affinity of an antibody to an antigen and the off-rate of an antibody-antigen interaction can be determined by competitive binding assays. One example of a competitive binding assay is a radioimmunoassay comprising the incubation of labeled antigen (e.g.,  $^3\text{H}$  or  $^{125}\text{I}$ ) with the antibody of interest in the presence of increasing amounts

of unlabeled antigen, and the detection of the antibody bound to the labeled antigen. The affinity of the antibody of interest for a particular antigen and the binding off-rates can be determined from the data by scatchard plot analysis. Competition with a second antibody can also be determined using radioimmunoassays. In this case, the antigen is incubated with antibody of interest conjugated to a labeled compound (e.g.,  $^3\text{H}$  or  $^{125}\text{I}$ ) in the presence of increasing amounts of an unlabeled second antibody.

[0265] Antibodies of the invention may be characterized using immunocytochemistry methods on cells (e.g., mammalian cells, such as CHO cells) transfected with a vector enabling the expression of an antigen or with vector alone using techniques commonly known in the art. Antibodies that bind antigen transfected cells, but not vector-only transfected cells, are antigen specific.

#### *Therapeutic Uses*

[0266] The present invention is further directed to antibody-based therapies which involve administering antibodies of the invention to an animal, preferably a mammal, and most preferably a human, patient for treating one or more of the disclosed diseases, disorders, or conditions. Therapeutic compounds of the invention include, but are not limited to, antibodies of the invention (including fragments, analogs and derivatives thereof as described herein) and nucleic acids encoding antibodies of the invention (including fragments, analogs and derivatives thereof and anti-idiotypic antibodies as described herein). The antibodies of the invention can be used to treat, inhibit or prevent diseases, disorders or conditions associated with aberrant expression and/or activity of a polypeptide of the invention, including, but not limited to, any one or more of the diseases, disorders, or conditions described herein. The treatment and/or prevention of diseases, disorders, or conditions associated with aberrant expression and/or activity of a polypeptide of the invention includes, but is not limited to, alleviating symptoms associated with those diseases, disorders or conditions. Antibodies of the invention may be provided in pharmaceutically acceptable compositions as known in the art or as described herein.

[0267] In a specific and preferred embodiment, the present invention is directed to antibody-based therapies which involve administering antibodies of the invention to an animal, preferably a mammal, and most preferably a human, patient for treating one or more

diseases, disorders, or conditions, including but not limited to: neural disorders, immune system disorders, muscular disorders, reproductive disorders, gastrointestinal disorders, pulmonary disorders, cardiovascular disorders, renal disorders, proliferative disorders, and/or cancerous diseases and conditions., and/or as described elsewhere herein. Therapeutic compounds of the invention include, but are not limited to, antibodies of the invention (e.g., antibodies directed to the full length protein expressed on the cell surface of a mammalian cell; antibodies directed to an epitope of a polypeptide of the invention (such as, for example, a predicted linear epitope shown in column 7 of Table 1; or a conformational epitope, including fragments, analogs and derivatives thereof as described herein) and nucleic acids encoding antibodies of the invention (including fragments, analogs and derivatives thereof and anti-idiotypic antibodies as described herein). The antibodies of the invention can be used to treat, inhibit or prevent diseases, disorders or conditions associated with aberrant expression and/or activity of a polypeptide of the invention, including, but not limited to, any one or more of the diseases, disorders, or conditions described herein. The treatment and/or prevention of diseases, disorders, or conditions associated with aberrant expression and/or activity of a polypeptide of the invention includes, but is not limited to, alleviating symptoms associated with those diseases, disorders or conditions. Antibodies of the invention may be provided in pharmaceutically acceptable compositions as known in the art or as described herein.

[0268] A summary of the ways in which the antibodies of the present invention may be used therapeutically includes binding polynucleotides or polypeptides of the present invention locally or systemically in the body or by direct cytotoxicity of the antibody, e.g. as mediated by complement (CDC) or by effector cells (ADCC). Some of these approaches are described in more detail below. Armed with the teachings provided herein, one of ordinary skill in the art will know how to use the antibodies of the present invention for diagnostic, monitoring or therapeutic purposes without undue experimentation.

[0269] The antibodies of this invention may be advantageously utilized in combination with other monoclonal or chimeric antibodies, or with lymphokines or hematopoietic growth factors (such as, e.g., IL-2, IL-3 and IL-7), for example, which serve to increase the number or activity of effector cells which interact with the antibodies.

[0270] The antibodies of the invention may be administered alone or in combination with other types of treatments (e.g., radiation therapy, chemotherapy, hormonal therapy,

immunotherapy and anti-tumor agents). Generally, administration of products of a species origin or species reactivity (in the case of antibodies) that is the same species as that of the patient is preferred. Thus, in a preferred embodiment, human antibodies, fragments derivatives, analogs, or nucleic acids, are administered to a human patient for therapy or prophylaxis.

[0271] It is preferred to use high affinity and/or potent *in vivo* inhibiting and/or neutralizing antibodies against polypeptides or polynucleotides of the present invention, fragments or regions thereof, for both immunoassays directed to and therapy of disorders related to polynucleotides or polypeptides, including fragments thereof, of the present invention. Such antibodies, fragments, or regions, will preferably have an affinity for polynucleotides or polypeptides of the invention, including fragments thereof. Preferred binding affinities include those with a dissociation constant or  $K_d$  less than  $5 \times 10^{-2}$  M,  $10^{-2}$  M,  $5 \times 10^{-3}$  M,  $10^{-3}$  M,  $5 \times 10^{-4}$  M,  $10^{-4}$  M,  $5 \times 10^{-5}$  M,  $10^{-5}$  M,  $5 \times 10^{-6}$  M,  $10^{-6}$  M,  $5 \times 10^{-7}$  M,  $10^{-7}$  M,  $5 \times 10^{-8}$  M,  $10^{-8}$  M,  $5 \times 10^{-9}$  M,  $10^{-9}$  M,  $5 \times 10^{-10}$  M,  $10^{-10}$  M,  $5 \times 10^{-11}$  M,  $10^{-11}$  M,  $5 \times 10^{-12}$  M,  $10^{-12}$  M,  $5 \times 10^{-13}$  M,  $10^{-13}$  M,  $5 \times 10^{-14}$  M,  $10^{-14}$  M,  $5 \times 10^{-15}$  M, and  $10^{-15}$  M.

#### *Gene Therapy*

[0272] In a specific embodiment, nucleic acids comprising sequences encoding antibodies or functional derivatives thereof, are administered to treat, inhibit or prevent a disease or disorder associated with aberrant expression and/or activity of a polypeptide of the invention, by way of gene therapy. Gene therapy refers to therapy performed by the administration to a subject of an expressed or expressible nucleic acid. In this embodiment of the invention, the nucleic acids produce their encoded protein that mediates a therapeutic effect.

[0273] Any of the methods for gene therapy available in the art can be used according to the present invention. Exemplary methods are described below.

[0274] For general reviews of the methods of gene therapy, see Goldspiel et al., *Clinical Pharmacy* 12:488-505 (1993); Wu and Wu, *Biotherapy* 3:87-95 (1991); Tolstoshev, *Ann. Rev. Pharmacol. Toxicol.* 32:573-596 (1993); Mulligan, *Science* 260:926-932 (1993); and Morgan and Anderson, *Ann. Rev. Biochem.* 62:191-217 (1993); May, *TIBTECH* 11(5):155-215 (1993). Methods commonly known in the art of recombinant DNA technology which can be used are described in Ausubel et al. (eds.), *Current Protocols in Molecular Biology*, John

Wiley & Sons, NY (1993); and Kriegler, Gene Transfer and Expression, A Laboratory Manual, Stockton Press, NY (1990).

[0275] In a preferred embodiment, the compound comprises nucleic acid sequences encoding an antibody, said nucleic acid sequences being part of expression vectors that express the antibody or fragments or chimeric proteins or heavy or light chains thereof in a suitable host. In particular, such nucleic acid sequences have promoters operably linked to the antibody coding region, said promoter being inducible or constitutive, and, optionally, tissue-specific. In another particular embodiment, nucleic acid molecules are used in which the antibody coding sequences and any other desired sequences are flanked by regions that promote homologous recombination at a desired site in the genome, thus providing for intrachromosomal expression of the antibody encoding nucleic acids (Koller and Smithies, Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); Zijlstra et al., Nature 342:435-438 (1989). In specific embodiments, the expressed antibody molecule is a single chain antibody; alternatively, the nucleic acid sequences include sequences encoding both the heavy and light chains, or fragments thereof, of the antibody.

[0276] Delivery of the nucleic acids into a patient may be either direct, in which case the patient is directly exposed to the nucleic acid or nucleic acid-carrying vectors, or indirect, in which case, cells are first transformed with the nucleic acids *in vitro*, then transplanted into the patient. These two approaches are known, respectively, as *in vivo* or *ex vivo* gene therapy.

[0277] In a specific embodiment, the nucleic acid sequences are directly administered *in vivo*, where it is expressed to produce the encoded product. This can be accomplished by any of numerous methods known in the art, e.g., by constructing them as part of an appropriate nucleic acid expression vector and administering it so that they become intracellular, e.g., by infection using defective or attenuated retrovirals or other viral vectors (see U.S. Patent No. 4,980,286), or by direct injection of naked DNA, or by use of microparticle bombardment (e.g., a gene gun; Biolistic, Dupont), or coating with lipids or cell-surface receptors or transfecting agents, encapsulation in liposomes, microparticles, or microcapsules, or by administering them in linkage to a peptide which is known to enter the nucleus, by administering it in linkage to a ligand subject to receptor-mediated endocytosis (see, e.g., Wu and Wu, J. Biol. Chem. 262:4429-4432 (1987)) (which can be used to target cell types specifically expressing the receptors), etc. In another embodiment, nucleic acid-

ligand complexes can be formed in which the ligand comprises a fusogenic viral peptide to disrupt endosomes, allowing the nucleic acid to avoid lysosomal degradation. In yet another embodiment, the nucleic acid can be targeted *in vivo* for cell specific uptake and expression, by targeting a specific receptor (see, e.g., PCT Publications WO 92/06180; WO 92/22635; WO92/20316; WO93/14188, WO 93/20221). Alternatively, the nucleic acid can be introduced intracellularly and incorporated within host cell DNA for expression, by homologous recombination (Koller and Smithies, Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); Zijlstra et al., Nature 342:435-438 (1989)).

[0278] In a specific embodiment, viral vectors that contains nucleic acid sequences encoding an antibody of the invention are used. For example, a retroviral vector can be used (see Miller et al., Meth. Enzymol. 217:581-599 (1993)). These retroviral vectors contain the components necessary for the correct packaging of the viral genome and integration into the host cell DNA. The nucleic acid sequences encoding the antibody to be used in gene therapy are cloned into one or more vectors, which facilitates delivery of the gene into a patient. More detail about retroviral vectors can be found in Boesen et al., Biotherapy 6:291-302 (1994), which describes the use of a retroviral vector to deliver the *mdr1* gene to hematopoietic stem cells in order to make the stem cells more resistant to chemotherapy. Other references illustrating the use of retroviral vectors in gene therapy are: Clowes et al., J. Clin. Invest. 93:644-651 (1994); Kiem et al., Blood 83:1467-1473 (1994); Salmons and Gunzberg, Human Gene Therapy 4:129-141 (1993); and Grossman and Wilson, Curr. Opin. in Genetics and Devel. 3:110-114 (1993).

[0279] Adenoviruses are other viral vectors that can be used in gene therapy. Adenoviruses are especially attractive vehicles for delivering genes to respiratory epithelia. Adenoviruses naturally infect respiratory epithelia where they cause a mild disease. Other targets for adenovirus-based delivery systems are liver, the central nervous system, endothelial cells, and muscle. Adenoviruses have the advantage of being capable of infecting non-dividing cells. Kozarsky and Wilson, Current Opinion in Genetics and Development 3:499-503 (1993) present a review of adenovirus-based gene therapy. Bout et al., Human Gene Therapy 5:3-10 (1994) demonstrated the use of adenovirus vectors to transfer genes to the respiratory epithelia of rhesus monkeys. Other instances of the use of adenoviruses in gene therapy can be found in Rosenfeld et al., Science 252:431-434 (1991); Rosenfeld et al., Cell 68:143- 155 (1992); Mastrangeli et al., J. Clin. Invest. 91:225-234 (1993); PCT

Publication WO94/12649; and Wang, et al., Gene Therapy 2:775-783 (1995). In a preferred embodiment, adenovirus vectors are used.

[0280] Adeno-associated virus (AAV) has also been proposed for use in gene therapy (Walsh et al., Proc. Soc. Exp. Biol. Med. 204:289-300 (1993); U.S. Patent No. 5,436,146).

[0281] Another approach to gene therapy involves transferring a gene to cells in tissue culture by such methods as electroporation, lipofection, calcium phosphate mediated transfection, or viral infection. Usually, the method of transfer includes the transfer of a selectable marker to the cells. The cells are then placed under selection to isolate those cells that have taken up and are expressing the transferred gene. Those cells are then delivered to a patient.

[0282] In this embodiment, the nucleic acid is introduced into a cell prior to administration *in vivo* of the resulting recombinant cell. Such introduction can be carried out by any method known in the art, including but not limited to transfection, electroporation, microinjection, infection with a viral or bacteriophage vector containing the nucleic acid sequences, cell fusion, chromosome-mediated gene transfer, microcell-mediated gene transfer, spheroplast fusion, etc. Numerous techniques are known in the art for the introduction of foreign genes into cells (see, e.g., Loeffler and Behr, Meth. Enzymol. 217:599-618 (1993); Cohen et al., Meth. Enzymol. 217:618-644 (1993); Cline, Pharmac. Ther. 29:69-92m (1985) and may be used in accordance with the present invention, provided that the necessary developmental and physiological functions of the recipient cells are not disrupted. The technique should provide for the stable transfer of the nucleic acid to the cell, so that the nucleic acid is expressible by the cell and preferably heritable and expressible by its cell progeny.

[0283] The resulting recombinant cells can be delivered to a patient by various methods known in the art. Recombinant blood cells (e.g., hematopoietic stem or progenitor cells) are preferably administered intravenously. The amount of cells envisioned for use depends on the desired effect, patient state, etc., and can be determined by one skilled in the art.

[0284] Cells into which a nucleic acid can be introduced for purposes of gene therapy encompass any desired, available cell type, and include but are not limited to epithelial cells, endothelial cells, keratinocytes, fibroblasts, muscle cells, hepatocytes; blood cells such as T lymphocytes, B lymphocytes, monocytes, macrophages, neutrophils, eosinophils, megakaryocytes, granulocytes; various stem or progenitor cells, in particular hematopoietic



stem or progenitor cells, e.g., as obtained from bone marrow, umbilical cord blood, peripheral blood, fetal liver, etc.

[0285] In a preferred embodiment, the cell used for gene therapy is autologous to the patient.

[0286] In an embodiment in which recombinant cells are used in gene therapy, nucleic acid sequences encoding an antibody are introduced into the cells such that they are expressible by the cells or their progeny, and the recombinant cells are then administered *in vivo* for therapeutic effect. In a specific embodiment, stem or progenitor cells are used. Any stem and/or progenitor cells which can be isolated and maintained *in vitro* can potentially be used in accordance with this embodiment of the present invention (see e.g. PCT Publication WO 94/08598; Stemple and Anderson, *Cell* 71:973-985 (1992); Rheinwald, *Meth. Cell Bio.* 21A:229 (1980); and Pittelkow and Scott, *Mayo Clinic Proc.* 61:771 (1986)).

[0287] In a specific embodiment, the nucleic acid to be introduced for purposes of gene therapy comprises an inducible promoter operably linked to the coding region, such that expression of the nucleic acid is controllable by the presence or absence of an appropriate inducer of transcription.

#### *Demonstration of Therapeutic or Prophylactic Activity*

[0288] The compounds or pharmaceutical compositions of the invention are preferably tested *in vitro*, and then *in vivo* for the desired therapeutic or prophylactic activity, prior to use in humans. For example, *in vitro* assays to demonstrate the therapeutic or prophylactic utility of a compound or pharmaceutical composition include, the effect of a compound on a cell line or a patient tissue sample. The effect of the compound or composition on the cell line and/or tissue sample can be determined utilizing techniques known to those of skill in the art including, but not limited to, rosette formation assays and cell lysis assays. In accordance with the invention, *in vitro* assays which can be used to determine whether administration of a specific compound is indicated, include *in vitro* cell culture assays in which a patient tissue sample is grown in culture, and exposed to or otherwise administered a compound, and the effect of such compound upon the tissue sample is observed.

#### [0289] *Therapeutic/Prophylactic Administration and Composition*

[0290] The invention provides methods of treatment, inhibition and prophylaxis by administration to a subject of an effective amount of a compound or pharmaceutical composition of the invention, preferably a polypeptide or antibody of the invention. In a preferred embodiment, the compound is substantially purified (e.g., substantially free from substances that limit its effect or produce undesired side-effects). The subject is preferably an animal, including but not limited to animals such as cows, pigs, horses, chickens, cats, dogs, etc., and is preferably a mammal, and most preferably human.

[0291] Formulations and methods of administration that can be employed when the compound comprises a nucleic acid or an immunoglobulin are described above; additional appropriate formulations and routes of administration can be selected from among those described herein below.

[0292] Various delivery systems are known and can be used to administer a compound of the invention, e.g., encapsulation in liposomes, microparticles, microcapsules, recombinant cells capable of expressing the compound, receptor-mediated endocytosis (see, e.g., Wu and Wu, J. Biol. Chem. 262:4429-4432 (1987)), construction of a nucleic acid as part of a retroviral or other vector, etc. Methods of introduction include but are not limited to intradermal, intramuscular, intraperitoneal, intravenous, subcutaneous, intranasal, epidural, and oral routes. The compounds or compositions may be administered by any convenient route, for example by infusion or bolus injection, by absorption through epithelial or mucocutaneous linings (e.g., oral mucosa, rectal and intestinal mucosa, etc.) and may be administered together with other biologically active agents. Administration can be systemic or local. In addition, it may be desirable to introduce the pharmaceutical compounds or compositions of the invention into the central nervous system by any suitable route, including intraventricular and intrathecal injection; intraventricular injection may be facilitated by an intraventricular catheter, for example, attached to a reservoir, such as an Ommaya reservoir. Pulmonary administration can also be employed, e.g., by use of an inhaler or nebulizer, and formulation with an aerosolizing agent.

[0293] In a specific embodiment, it may be desirable to administer the pharmaceutical compounds or compositions of the invention locally to the area in need of treatment; this may be achieved by, for example, and not by way of limitation, local infusion during surgery, topical application, e.g., in conjunction with a wound dressing after surgery, by injection, by means of a catheter, by means of a suppository, or by means of an implant, said implant

being of a porous, non-porous, or gelatinous material, including membranes, such as sialastic membranes, or fibers. Preferably, when administering a protein, including an antibody, of the invention, care must be taken to use materials to which the protein does not absorb.

[0294] In another embodiment, the compound or composition can be delivered in a vesicle, in particular a liposome (see Langer, *Science* 249:1527-1533 (1990); Treat et al., in *Liposomes in the Therapy of Infectious Disease and Cancer*, Lopez-Berestein and Fidler (eds.), Liss, New York, pp. 353- 365 (1989); Lopez-Berestein, *ibid.*, pp. 317-327; see generally *ibid.*)

[0295] In yet another embodiment, the compound or composition can be delivered in a controlled release system. In one embodiment, a pump may be used (see Langer, *supra*; Sefton, *CRC Crit. Ref. Biomed. Eng.* 14:201 (1987); Buchwald et al., *Surgery* 88:507 (1980); Saudek et al., *N. Engl. J. Med.* 321:574 (1989)). In another embodiment, polymeric materials can be used (see *Medical Applications of Controlled Release*, Langer and Wise (eds.), CRC Pres., Boca Raton, Florida (1974); *Controlled Drug Bioavailability, Drug Product Design and Performance*, Smolen and Ball (eds.), Wiley, New York (1984); Ranger and Peppas, J., *Macromol. Sci. Rev. Macromol. Chem.* 23:61 (1983); see also Levy et al., *Science* 228:190 (1985); During et al., *Ann. Neurol.* 25:351 (1989); Howard et al., *J. Neurosurg.* 71:105 (1989)). In yet another embodiment, a controlled release system can be placed in proximity of the therapeutic target, e.g., the brain, thus requiring only a fraction of the systemic dose (see, e.g., Goodson, in *Medical Applications of Controlled Release*, *supra*, vol. 2, pp. 115-138 (1984)).

[0296] Other controlled release systems are discussed in the review by Langer (*Science* 249:1527-1533 (1990)).

[0297] In a specific embodiment where the compound of the invention is a nucleic acid encoding a protein, the nucleic acid can be administered *in vivo* to promote expression of its encoded protein, by constructing it as part of an appropriate nucleic acid expression vector and administering it so that it becomes intracellular, e.g., by use of a retroviral vector (see U.S. Patent No. 4,980,286), or by direct injection, or by use of microparticle bombardment (e.g., a gene gun; Biolistic, Dupont), or coating with lipids or cell-surface receptors or transfecting agents, or by administering it in linkage to a homeobox- like peptide which is known to enter the nucleus (see e.g., Joliot et al., *Proc. Natl. Acad. Sci. USA* 88:1864-1868

(1991)), etc. Alternatively, a nucleic acid can be introduced intracellularly and incorporated within host cell DNA for expression, by homologous recombination.

[0298] The present invention also provides pharmaceutical compositions. Such compositions comprise a therapeutically effective amount of a compound, and a pharmaceutically acceptable carrier. In a specific embodiment, the term "pharmaceutically acceptable" means approved by a regulatory agency of the Federal or a state government or listed in the U.S. Pharmacopeia or other generally recognized pharmacopeia for use in animals, and more particularly in humans. The term "carrier" refers to a diluent, adjuvant, excipient, or vehicle with which the therapeutic is administered. Such pharmaceutical carriers can be sterile liquids, such as water and oils, including those of petroleum, animal, vegetable or synthetic origin, such as peanut oil, soybean oil, mineral oil, sesame oil and the like. Water is a preferred carrier when the pharmaceutical composition is administered intravenously. Saline solutions and aqueous dextrose and glycerol solutions can also be employed as liquid carriers, particularly for injectable solutions. Suitable pharmaceutical excipients include starch, glucose, lactose, sucrose, gelatin, malt, rice, flour, chalk, silica gel, sodium stearate, glycerol monostearate, talc, sodium chloride, dried skim milk, glycerol, propylene, glycol, water, ethanol and the like. The composition, if desired, can also contain minor amounts of wetting or emulsifying agents, or pH buffering agents. These compositions can take the form of solutions, suspensions, emulsion, tablets, pills, capsules, powders, sustained-release formulations and the like. The composition can be formulated as a suppository, with traditional binders and carriers such as triglycerides. Oral formulation can include standard carriers such as pharmaceutical grades of mannitol, lactose, starch, magnesium stearate, sodium saccharine, cellulose, magnesium carbonate, etc. Examples of suitable pharmaceutical carriers are described in "Remington's Pharmaceutical Sciences" by E.W. Martin. Such compositions will contain a therapeutically effective amount of the compound, preferably in purified form, together with a suitable amount of carrier so as to provide the form for proper administration to the patient. The formulation should suit the mode of administration.

[0299] In a preferred embodiment, the composition is formulated in accordance with routine procedures as a pharmaceutical composition adapted for intravenous administration to human beings. Typically, compositions for intravenous administration are solutions in sterile isotonic aqueous buffer. Where necessary, the composition may also include a

solubilizing agent and a local anesthetic such as lignocaine to ease pain at the site of the injection. Generally, the ingredients are supplied either separately or mixed together in unit dosage form, for example, as a dry lyophilized powder or water free concentrate in a hermetically sealed container such as an ampoule or sachette indicating the quantity of active agent. Where the composition is to be administered by infusion, it can be dispensed with an infusion bottle containing sterile pharmaceutical grade water or saline. Where the composition is administered by injection, an ampoule of sterile water for injection or saline can be provided so that the ingredients may be mixed prior to administration.

[0300] The compounds of the invention can be formulated as neutral or salt forms. Pharmaceutically acceptable salts include those formed with anions such as those derived from hydrochloric, phosphoric, acetic, oxalic, tartaric acids, etc., and those formed with cations such as those derived from sodium, potassium, ammonium, calcium, ferric hydroxides, isopropylamine, triethylamine, 2-ethylamino ethanol, histidine, procaine, etc.

[0301] The amount of the compound of the invention which will be effective in the treatment, inhibition and prevention of a disease or disorder associated with aberrant expression and/or activity of a polypeptide of the invention can be determined by standard clinical techniques. In addition, in vitro assays may optionally be employed to help identify optimal dosage ranges. The precise dose to be employed in the formulation will also depend on the route of administration, and the seriousness of the disease or disorder, and should be decided according to the judgment of the practitioner and each patient's circumstances. Effective doses may be extrapolated from dose-response curves derived from in vitro or animal model test systems.

[0302] For antibodies, the dosage administered to a patient is typically 0.1 mg/kg to 100 mg/kg of the patient's body weight. Preferably, the dosage administered to a patient is between 0.1 mg/kg and 20 mg/kg of the patient's body weight, more preferably 1 mg/kg to 10 mg/kg of the patient's body weight. Generally, human antibodies have a longer half-life within the human body than antibodies from other species due to the immune response to the foreign polypeptides. Thus, lower dosages of human antibodies and less frequent administration is often possible. Further, the dosage and frequency of administration of antibodies of the invention may be reduced by enhancing uptake and tissue penetration (e.g., into the brain) of the antibodies by modifications such as, for example, lipidation.

[0303] The invention also provides a pharmaceutical pack or kit comprising one or more containers filled with one or more of the ingredients of the pharmaceutical compositions of the invention. Optionally associated with such container(s) can be a notice in the form prescribed by a governmental agency regulating the manufacture, use or sale of pharmaceuticals or biological products, which notice reflects approval by the agency of manufacture, use or sale for human administration.

#### *Diagnosis and Imaging*

[0304] Labeled antibodies, and derivatives and analogs thereof, which specifically bind to a polypeptide of interest can be used for diagnostic purposes to detect, diagnose, or monitor diseases, disorders, and/or conditions associated with the aberrant expression and/or activity of a polypeptide of the invention. The invention provides for the detection of aberrant expression of a polypeptide of interest, comprising (a) assaying the expression of the polypeptide of interest in cells or body fluid of an individual using one or more antibodies specific to the polypeptide interest and (b) comparing the level of gene expression with a standard gene expression level, whereby an increase or decrease in the assayed polypeptide gene expression level compared to the standard expression level is indicative of aberrant expression.

[0305] The invention provides a diagnostic assay for diagnosing a disorder, comprising (a) assaying the expression of the polypeptide of interest in cells or body fluid of an individual using one or more antibodies specific to the polypeptide interest and (b) comparing the level of gene expression with a standard gene expression level, whereby an increase or decrease in the assayed polypeptide gene expression level compared to the standard expression level is indicative of a particular disorder. With respect to cancer, the presence of a relatively high amount of transcript in biopsied tissue from an individual may indicate a predisposition for the development of the disease, or may provide a means for detecting the disease prior to the appearance of actual clinical symptoms. A more definitive diagnosis of this type may allow health professionals to employ preventative measures or aggressive treatment earlier thereby preventing the development or further progression of the cancer.

[0306] Antibodies of the invention can be used to assay protein levels in a biological sample using classical immunohistological methods known to those of skill in the art (e.g.,

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see Jalkanen et al., J. Cell. Biol. 101:976-985 (1985); Jalkanen et al., J. Cell. Biol. 105:3087-3096 (1987)). Other antibody-based methods useful for detecting protein gene expression include immunoassays, such as the enzyme linked immunosorbent assay (ELISA) and the radioimmunoassay (RIA). Suitable antibody assay labels are known in the art and include enzyme labels, such as, glucose oxidase; radioisotopes, such as iodine ( $^{125}\text{I}$ ,  $^{121}\text{I}$ ), carbon ( $^{14}\text{C}$ ), sulfur ( $^{35}\text{S}$ ), tritium ( $^3\text{H}$ ), indium ( $^{112}\text{In}$ ), and technetium ( $^{99}\text{Tc}$ ); luminescent labels, such as luminol; and fluorescent labels, such as fluorescein and rhodamine, and biotin.

[0307] One facet of the invention is the detection and diagnosis of a disease or disorder associated with aberrant expression of a polypeptide of interest in an animal, preferably a mammal and most preferably a human. In one embodiment, diagnosis comprises: a) administering (for example, parenterally, subcutaneously, or intraperitoneally) to a subject an effective amount of a labeled molecule which specifically binds to the polypeptide of interest; b) waiting for a time interval following the administering for permitting the labeled molecule to preferentially concentrate at sites in the subject where the polypeptide is expressed (and for unbound labeled molecule to be cleared to background level); c) determining background level; and d) detecting the labeled molecule in the subject, such that detection of labeled molecule above the background level indicates that the subject has a particular disease or disorder associated with aberrant expression of the polypeptide of interest. Background level can be determined by various methods including, comparing the amount of labeled molecule detected to a standard value previously determined for a particular system.

[0308] It will be understood in the art that the size of the subject and the imaging system used will determine the quantity of imaging moiety needed to produce diagnostic images. In the case of a radioisotope moiety, for a human subject, the quantity of radioactivity injected will normally range from about 5 to 20 millicuries of  $^{99\text{m}}\text{Tc}$ . The labeled antibody or antibody fragment will then preferentially accumulate at the location of cells which contain the specific protein. *In vivo* tumor imaging is described in S.W. Burchiel et al., "Immunopharmacokinetics of Radiolabeled Antibodies and Their Fragments." (Chapter 13 in Tumor Imaging: The Radiochemical Detection of Cancer, S.W. Burchiel and B. A. Rhodes, eds., Masson Publishing Inc. (1982)).

[0309] Depending on several variables, including the type of label used and the mode of administration, the time interval following the administration for permitting the labeled



molecule to preferentially concentrate at sites in the subject and for unbound labeled molecule to be cleared to background level is 6 to 48 hours or 6 to 24 hours or 6 to 12 hours. In another embodiment the time interval following administration is 5 to 20 days or 5 to 10 days.

[0310] In an embodiment, monitoring of the disease or disorder is carried out by repeating the method for diagnosing the disease or disease, for example, one month after initial diagnosis, six months after initial diagnosis, one year after initial diagnosis, etc.

[0311] Presence of the labeled molecule can be detected in the patient using methods known in the art for *in vivo* scanning. These methods depend upon the type of label used. Skilled artisans will be able to determine the appropriate method for detecting a particular label. Methods and devices that may be used in the diagnostic methods of the invention include, but are not limited to, computed tomography (CT), whole body scan such as position emission tomography (PET), magnetic resonance imaging (MRI), and sonography.

[0312] In a specific embodiment, the molecule is labeled with a radioisotope and is detected in the patient using a radiation responsive surgical instrument (Thurston et al., U.S. Patent No. 5,441,050). In another embodiment, the molecule is labeled with a fluorescent compound and is detected in the patient using a fluorescence responsive scanning instrument. In another embodiment, the molecule is labeled with a positron emitting metal and is detected in the patient using positron emission-tomography. In yet another embodiment, the molecule is labeled with a paramagnetic label and is detected in a patient using magnetic resonance imaging (MRI).

#### *Kits*

[0313] The present invention provides kits that can be used in the above methods. In one embodiment, a kit comprises an antibody of the invention, preferably a purified antibody, in one or more containers. In a specific embodiment, the kits of the present invention contain a substantially isolated polypeptide comprising an epitope which is specifically immunoreactive with an antibody included in the kit. Preferably, the kits of the present invention further comprise a control antibody which does not react with the polypeptide of interest. In another specific embodiment, the kits of the present invention contain a means for detecting the binding of an antibody to a polypeptide of interest (e.g., the antibody may be conjugated to a detectable substrate such as a fluorescent compound, an enzymatic substrate,

a radioactive compound or a luminescent compound, or a second antibody which recognizes the first antibody may be conjugated to a detectable substrate).

[0314] In another specific embodiment of the present invention, the kit is a diagnostic kit for use in screening serum containing antibodies specific against proliferative and/or cancerous polynucleotides and polypeptides. Such a kit may include a control antibody that does not react with the polypeptide of interest. Such a kit may include a substantially isolated polypeptide antigen comprising an epitope which is specifically immunoreactive with at least one anti-polypeptide antigen antibody. Further, such a kit includes means for detecting the binding of said antibody to the antigen (e.g., the antibody may be conjugated to a fluorescent compound such as fluorescein or rhodamine which can be detected by flow cytometry). In specific embodiments, the kit may include a recombinantly produced or chemically synthesized polypeptide antigen. The polypeptide antigen of the kit may also be attached to a solid support.

[0315] In a more specific embodiment the detecting means of the above-described kit includes a solid support to which said polypeptide antigen is attached. Such a kit may also include a non-attached reporter-labeled anti-human antibody. In this embodiment, binding of the antibody to the polypeptide antigen can be detected by binding of the said reporter-labeled antibody.

[0316] In an additional embodiment, the invention includes a diagnostic kit for use in screening serum containing antigens of the polypeptide of the invention. The diagnostic kit includes a substantially isolated antibody specifically immunoreactive with polypeptide or polynucleotide antigens, and means for detecting the binding of the polynucleotide or polypeptide antigen to the antibody. In one embodiment, the antibody is attached to a solid support. In a specific embodiment, the antibody may be a monoclonal antibody. The detecting means of the kit may include a second, labeled monoclonal antibody. Alternatively, or in addition, the detecting means may include a labeled, competing antigen.

[0317] In one diagnostic configuration, test serum is reacted with a solid phase reagent having a surface-bound antigen obtained by the methods of the present invention. After binding with specific antigen antibody to the reagent and removing unbound serum components by washing, the reagent is reacted with reporter-labeled anti-human antibody to bind reporter to the reagent in proportion to the amount of bound anti-antigen antibody on the solid support. The reagent is again washed to remove unbound labeled antibody, and the

amount of reporter associated with the reagent is determined. Typically, the reporter is an enzyme which is detected by incubating the solid phase in the presence of a suitable fluorometric, luminescent or colorimetric substrate (Sigma, St. Louis, MO).

[0318] The solid surface reagent in the above assay is prepared by known techniques for attaching protein material to solid support material, such as polymeric beads, dip sticks, 96-well plate or filter material. These attachment methods generally include non-specific adsorption of the protein to the support or covalent attachment of the protein, typically through a free amine group, to a chemically reactive group on the solid support, such as an activated carboxyl, hydroxyl, or aldehyde group. Alternatively, streptavidin coated plates can be used in conjunction with biotinylated antigen(s).

[0319] Thus, the invention provides an assay system or kit for carrying out this diagnostic method. The kit generally includes a support with surface-bound recombinant antigens, and a reporter-labeled anti-human antibody for detecting surface-bound anti-antigen antibody.

#### **Uses of the Polynucleotides**

[0320] Each of the polynucleotides identified herein can be used in numerous ways as reagents. The following description should be considered exemplary and utilizes known techniques.

[0321] The polynucleotides of the present invention are useful for chromosome identification. There exists an ongoing need to identify new chromosome markers, since few chromosome marking reagents, based on actual sequence data (repeat polymorphisms), are presently available. Each sequence is specifically targeted to and can hybridize with a particular location on an individual human chromosome, thus each polynucleotide of the present invention can routinely be used as a chromosome marker using techniques known in the art. Table 1, column 9 provides the chromosome location of some of the polynucleotides of the invention.

[0322] Briefly, sequences can be mapped to chromosomes by preparing PCR primers (preferably at least 15 bp (e.g., 15-25 bp) from the sequences shown in SEQ ID NO:X. Primers can optionally be selected using computer analysis so that primers do not span more than one predicted exon in the genomic DNA. These primers are then used for PCR screening of somatic cell hybrids containing individual human chromosomes. Only those

hybrids containing the human gene corresponding to SEQ ID NO:X will yield an amplified fragment.

[0323] Similarly, somatic hybrids provide a rapid method of PCR mapping the polynucleotides to particular chromosomes. Three or more clones can be assigned per day using a single thermal cycler. Moreover, sublocalization of the polynucleotides can be achieved with panels of specific chromosome fragments. Other gene mapping strategies that can be used include in situ hybridization, prescreening with labeled flow-sorted chromosomes, preselection by hybridization to construct chromosome specific-cDNA libraries, and computer mapping techniques (See, e.g., Shuler, Trends Biotechnol 16:456-459 (1998) which is hereby incorporated by reference in its entirety).

[0324] Precise chromosomal location of the polynucleotides can also be achieved using fluorescence in situ hybridization (FISH) of a metaphase chromosomal spread. This technique uses polynucleotides as short as 500 or 600 bases; however, polynucleotides 2,000-4,000 bp are preferred. For a review of this technique, see Verma et al., "Human Chromosomes: a Manual of Basic Techniques," Pergamon Press, New York (1988).

[0325] For chromosome mapping, the polynucleotides can be used individually (to mark a single chromosome or a single site on that chromosome) or in panels (for marking multiple sites and/or multiple chromosomes).

[0326] Thus, the present invention also provides a method for chromosomal localization which involves (a) preparing PCR primers from the polynucleotide sequences in Table 1 and/or Table 2 and SEQ ID NO:X and (b) screening somatic cell hybrids containing individual chromosomes.

[0327] The polynucleotides of the present invention would likewise be useful for radiation hybrid mapping, HAPPY mapping, and long range restriction mapping. For a review of these techniques and others known in the art, see, e.g. Dear, "Genome Mapping: A Practical Approach," IRL Press at Oxford University Press, London (1997); Aydin, J. Mol. Med. 77:691-694 (1999); Hacia et al., Mol. Psychiatry 3:483-492 (1998); Herrick et al., Chromosome Res. 7:409-423 (1999); Hamilton et al., Methods Cell Biol. 62:265-280 (2000); and/or Ott, J. Hered. 90:68-70 (1999) each of which is hereby incorporated by reference in its entirety.

[0328] Once a polynucleotide has been mapped to a precise chromosomal location, the physical position of the polynucleotide can be used in linkage analysis. Linkage analysis

establishes coinheritance between a chromosomal location and presentation of a particular disease. (Disease mapping data are found, for example, in V. McKusick, Mendelian Inheritance in Man (available on line through Johns Hopkins University Welch Medical Library)). Column 10 of Table 1 provides an OMIM reference identification number of diseases associated with the cytologic band disclosed in column 9 of Table 1, as determined using techniques described herein and by reference to Table 5. Assuming 1 megabase mapping resolution and one gene per 20 kb, a cDNA precisely localized to a chromosomal region associated with the disease could be one of 50-500 potential causative genes.

[0329] Thus, once coinheritance is established, differences in a polynucleotide of the invention and the corresponding gene between affected and unaffected individuals can be examined. First, visible structural alterations in the chromosomes, such as deletions or translocations, are examined in chromosome spreads or by PCR. If no structural alterations exist, the presence of point mutations are ascertained. Mutations observed in some or all affected individuals, but not in normal individuals, indicates that the mutation may cause the disease. However, complete sequencing of the polypeptide and the corresponding gene from several normal individuals is required to distinguish the mutation from a polymorphism. If a new polymorphism is identified, this polymorphic polypeptide can be used for further linkage analysis.

[0330] Furthermore, increased or decreased expression of the gene in affected individuals as compared to unaffected individuals can be assessed using the polynucleotides of the invention. Any of these alterations (altered expression, chromosomal rearrangement, or mutation) can be used as a diagnostic or prognostic marker. Diagnostic and prognostic methods, kits and reagents encompassed by the present invention are briefly described below and more thoroughly elsewhere herein (see e.g., the sections labeled "Antibodies", "Diagnostic Assays", and "Methods for Detecting Diseases").

[0331] Thus, the invention also provides a diagnostic method useful during diagnosis of a disorder, involving measuring the expression level of polynucleotides of the present invention in cells or body fluid from an individual and comparing the measured gene expression level with a standard level of polynucleotide expression level, whereby an increase or decrease in the gene expression level compared to the standard is indicative of a disorder. Additional non-limiting examples of diagnostic methods encompassed by the present invention are more thoroughly described elsewhere herein (see, e.g., Example 12).

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[0332] In still another embodiment, the invention includes a kit for analyzing samples for the presence of proliferative and/or cancerous polynucleotides derived from a test subject. In a general embodiment, the kit includes at least one polynucleotide probe containing a nucleotide sequence that will specifically hybridize with a polynucleotide of the invention and a suitable container. In a specific embodiment, the kit includes two polynucleotide probes defining an internal region of the polynucleotide of the invention, where each probe has one strand containing a 31' mer-end internal to the region. In a further embodiment, the probes may be useful as primers for polymerase chain reaction amplification.

[0333] Where a diagnosis of a related disorder, including, for example, diagnosis of a tumor, has already been made according to conventional methods, the present invention is useful as a prognostic indicator, whereby patients exhibiting enhanced or depressed polynucleotide of the invention expression will experience a worse clinical outcome relative to patients expressing the gene at a level nearer the standard level.

[0334] By "measuring the expression level of polynucleotides of the invention" is intended qualitatively or quantitatively measuring or estimating the level of the polypeptide of the invention or the level of the mRNA encoding the polypeptide of the invention in a first biological sample either directly (e.g., by determining or estimating absolute protein level or mRNA level) or relatively (e.g., by comparing to the polypeptide level or mRNA level in a second biological sample). Preferably, the polypeptide level or mRNA level in the first biological sample is measured or estimated and compared to a standard polypeptide level or mRNA level, the standard being taken from a second biological sample obtained from an individual not having the related disorder or being determined by averaging levels from a population of individuals not having a related disorder. As will be appreciated in the art, once a standard polypeptide level or mRNA level is known, it can be used repeatedly as a standard for comparison.

[0335] By "biological sample" is intended any biological sample obtained from an individual, body fluid, cell line, tissue culture, or other source which contains polypeptide of the present invention or the corresponding mRNA. As indicated, biological samples include body fluids (such as semen, lymph, vaginal pool, sera, plasma, urine, synovial fluid and spinal fluid) which contain the polypeptide of the present invention, and tissue sources found to express the polypeptide of the present invention. Methods for obtaining tissue biopsies

and body fluids from mammals are well known in the art. Where the biological sample is to include mRNA, a tissue biopsy is the preferred source.

[0336] The method(s) provided above may preferably be applied in a diagnostic method and/or kits in which polynucleotides and/or polypeptides of the invention are attached to a solid support. In one exemplary method, the support may be a "gene chip" or a "biological chip" as described in US Patents 5,837,832, 5,874,219, and 5,856,174. Further, such a gene chip with polynucleotides of the invention attached may be used to identify polymorphisms between the isolated polynucleotide sequences of the invention, with polynucleotides isolated from a test subject. The knowledge of such polymorphisms (i.e. their location, as well as, their existence) would be beneficial in identifying disease loci for many disorders, such as for example, in neural disorders, immune system disorders, muscular disorders, reproductive disorders, gastrointestinal disorders, pulmonary disorders, digestive disorders, metabolic disorders, cardiovascular disorders, renal disorders, proliferative disorders, and/or cancerous diseases and conditions. Such a method is described in US Patents 5,858,659 and 5,856,104. The US Patents referenced *supra* are hereby incorporated by reference in their entirety herein.

[0337] The present invention encompasses polynucleotides of the present invention that are chemically synthesized, or reproduced as peptide nucleic acids (PNA), or according to other methods known in the art. The use of PNAs would serve as the preferred form if the polynucleotides of the invention are incorporated onto a solid support, or gene chip. For the purposes of the present invention, a peptide nucleic acid (PNA) is a polyamide type of DNA analog and the monomeric units for adenine, guanine, thymine and cytosine are available commercially (Perceptive Biosystems). Certain components of DNA, such as phosphorus, phosphorus oxides, or deoxyribose derivatives, are not present in PNAs. As disclosed by Nielsen et al., Science 254, 1497 (1991); and Egholm et al., Nature 365, 666 (1993), PNAs bind specifically and tightly to complementary DNA strands and are not degraded by nucleases. In fact, PNA binds more strongly to DNA than DNA itself does. This is probably because there is no electrostatic repulsion between the two strands, and also the polyamide backbone is more flexible. Because of this, PNA/DNA duplexes bind under a wider range of stringency conditions than DNA/DNA duplexes, making it easier to perform multiplex hybridization. Smaller probes can be used than with DNA due to the strong binding. In addition, it is more likely that single base mismatches can be determined with PNA/DNA



hybridization because a single mismatch in a PNA/DNA 15-mer lowers the melting point (T.sub.m) by 8°-20° C, vs. 4°-16° C for the DNA/DNA 15-mer duplex. Also, the absence of charge groups in PNA means that hybridization can be done at low ionic strengths and reduce possible interference by salt during the analysis.

[0338] The compounds of the present invention have uses which include, but are not limited to, detecting cancer in mammals. In particular the invention is useful during diagnosis of pathological cell proliferative neoplasias which include, but are not limited to: acute myelogenous leukemias including acute monocytic leukemia, acute myeloblastic leukemia, acute promyelocytic leukemia, acute myelomonocytic leukemia, acute erythroleukemia, acute megakaryocytic leukemia, and acute undifferentiated leukemia, etc.; and chronic myelogenous leukemias including chronic myelomonocytic leukemia, chronic granulocytic leukemia, etc. Preferred mammals include monkeys, apes, cats, dogs, cows, pigs, horses, rabbits and humans. Particularly preferred are humans.

[0339] Pathological cell proliferative disorders are often associated with inappropriate activation of proto-oncogenes. (Gelman, E. P. et al., "The Etiology of Acute Leukemia: Molecular Genetics and Viral Oncology," in Neoplastic Diseases of the Blood, Vol 1., Wiernik, P. H. et al. eds., 161-182 (1985)). Neoplasias are now believed to result from the qualitative alteration of a normal cellular gene product, or from the quantitative modification of gene expression by insertion into the chromosome of a viral sequence, by chromosomal translocation of a gene to a more actively transcribed region, or by some other mechanism. (Gelman et al., *supra*) It is likely that mutated or altered expression of specific genes is involved in the pathogenesis of some leukemias, among other tissues and cell types. (Gelman et al., *supra*) Indeed, the human counterparts of the oncogenes involved in some animal neoplasias have been amplified or translocated in some cases of human leukemia and carcinoma. (Gelman et al., *supra*)

[0340] For example, c-myc expression is highly amplified in the non-lymphocytic leukemia cell line HL-60. When HL-60 cells are chemically induced to stop proliferation, the level of c-myc is found to be downregulated. (International Publication Number WO 91/15580). However, it has been shown that exposure of HL-60 cells to a DNA construct that is complementary to the 5' end of c-myc or c-myb blocks translation of the corresponding mRNAs which downregulates expression of the c-myc or c-myb proteins and causes arrest of cell proliferation and differentiation of the treated cells. (International Publication Number

WO 91/15580; Wickstrom et al., Proc. Natl. Acad. Sci. 85:1028 (1988); Anfossi et al., Proc. Natl. Acad. Sci. 86:3379 (1989)). However, the skilled artisan would appreciate the present invention's usefulness is not be limited to treatment, prevention, and/or prognosis of proliferative disorders of cells and tissues of hematopoietic origin, in light of the numerous cells and cell types of varying origins which are known to exhibit proliferative phenotypes.

[0341] In addition to the foregoing, a polynucleotide of the present invention can be used to control gene expression through triple helix formation or through antisense DNA or RNA. Antisense techniques are discussed, for example, in Okano, J. Neurochem. 56: 560 (1991); "Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988). Triple helix formation is discussed in, for instance Lee et al., Nucleic Acids Research 6: 3073 (1979); Cooney et al., Science 241: 456 (1988); and Dervan et al., Science 251: 1360 (1991). Both methods rely on binding of the polynucleotide to a complementary DNA or RNA. For these techniques, preferred polynucleotides are usually oligonucleotides 20 to 40 bases in length and complementary to either the region of the gene involved in transcription (triple helix - see Lee et al., Nucl. Acids Res. 6:3073 (1979); Cooney et al., Science 241:456 (1988); and Dervan et al., Science 251:1360 (1991)) or to the mRNA itself (antisense - Okano, J. Neurochem. 56:560 (1991); Oligodeoxy-nucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988)). Triple helix formation optimally results in a shut-off of RNA transcription from DNA, while antisense RNA hybridization blocks translation of an mRNA molecule into polypeptide. The oligonucleotide described above can also be delivered to cells such that the antisense RNA or DNA may be expressed *in vivo* to inhibit production of polypeptide of the present invention antigens. Both techniques are effective in model systems, and the information disclosed herein can be used to design antisense or triple helix polynucleotides in an effort to treat disease, and in particular, for the treatment of proliferative diseases and/or conditions. Non-limiting antisense and triple helix methods encompassed by the present invention are more thoroughly described elsewhere herein (see, e.g., the section labeled "Antisense and Ribozyme (Antagonists)").

[0342] Polynucleotides of the present invention are also useful in gene therapy. One goal of gene therapy is to insert a normal gene into an organism having a defective gene, in an effort to correct the genetic defect. The polynucleotides disclosed in the present invention offer a means of targeting such genetic defects in a highly accurate manner. Another goal is

to insert a new gene that was not present in the host genome, thereby producing a new trait in the host cell. Additional non-limiting examples of gene therapy methods encompassed by the present invention are more thoroughly described elsewhere herein (see, e.g., the sections labeled "Gene Therapy Methods", and Examples 16, 17 and 18).

[0343] The polynucleotides are also useful for identifying individuals from minute biological samples. The United States military, for example, is considering the use of restriction fragment length polymorphism (RFLP) for identification of its personnel. In this technique, an individual's genomic DNA is digested with one or more restriction enzymes, and probed on a Southern blot to yield unique bands for identifying personnel. This method does not suffer from the current limitations of "Dog Tags" which can be lost, switched, or stolen, making positive identification difficult. The polynucleotides of the present invention can be used as additional DNA markers for RFLP.

[0344] The polynucleotides of the present invention can also be used as an alternative to RFLP, by determining the actual base-by-base DNA sequence of selected portions of an individual's genome. These sequences can be used to prepare PCR primers for amplifying and isolating such selected DNA, which can then be sequenced. Using this technique, individuals can be identified because each individual will have a unique set of DNA sequences. Once an unique ID database is established for an individual, positive identification of that individual, living or dead, can be made from extremely small tissue samples.

[0345] Forensic biology also benefits from using DNA-based identification techniques as disclosed herein. DNA sequences taken from very small biological samples such as tissues, e.g., hair or skin, or body fluids, e.g., blood, saliva, semen, synovial fluid, amniotic fluid, breast milk, lymph, pulmonary sputum or surfactant, urine, fecal matter, etc., can be amplified using PCR. In one prior art technique, gene sequences amplified from polymorphic loci, such as DQa class II HLA gene, are used in forensic biology to identify individuals. (Erlich, H., PCR Technology, Freeman and Co. (1992)). Once these specific polymorphic loci are amplified, they are digested with one or more restriction enzymes, yielding an identifying set of bands on a Southern blot probed with DNA corresponding to the DQa class II HLA gene. Similarly, polynucleotides of the present invention can be used as polymorphic markers for forensic purposes.

[0346] There is also a need for reagents capable of identifying the source of a particular tissue. Such need arises, for example, in forensics when presented with tissue of unknown origin. Appropriate reagents can comprise, for example, DNA probes or primers prepared from the sequences of the present invention, specific to tissues, including but not limited to those shown in Table 1. Panels of such reagents can identify tissue by species and/or by organ type. In a similar fashion, these reagents can be used to screen tissue cultures for contamination. Additional non-limiting examples of such uses are further described herein.

[0347] The polynucleotides of the present invention are also useful as hybridization probes for differential identification of the tissue(s) or cell type(s) present in a biological sample. Similarly, polypeptides and antibodies directed to polypeptides of the present invention are useful to provide immunological probes for differential identification of the tissue(s) (e.g., immunohistochemistry assays) or cell type(s) (e.g., immunocytochemistry assays). In addition, for a number of disorders of the above tissues or cells, significantly higher or lower levels of gene expression of the polynucleotides/polypeptides of the present invention may be detected in certain tissues (e.g., tissues expressing polypeptides and/or polynucleotides of the present invention, for example, those disclosed in column 8 of Table 1, and/or cancerous and/or wounded tissues) or bodily fluids (e.g., semen, lymph, vaginal pool, serum, plasma, urine, synovial fluid or spinal fluid) taken from an individual having such a disorder, relative to a "standard" gene expression level, i.e., the expression level in healthy tissue from an individual not having the disorder.

[0348] Thus, the invention provides a diagnostic method of a disorder, which involves: (a) assaying gene expression level in cells or body fluid of an individual; (b) comparing the gene expression level with a standard gene expression level, whereby an increase or decrease in the assayed gene expression level compared to the standard expression level is indicative of a disorder.

[0349] In the very least, the polynucleotides of the present invention can be used as molecular weight markers on Southern gels, as diagnostic probes for the presence of a specific mRNA in a particular cell type, as a probe to "subtract-out" known sequences in the process of discovering novel polynucleotides, for selecting and making oligomers for attachment to a "gene chip" or other support, to raise anti-DNA antibodies using DNA immunization techniques, and as an antigen to elicit an immune response.

**Uses of the Polypeptides**

[0350] Each of the polypeptides identified herein can be used in numerous ways. The following description should be considered exemplary and utilizes known techniques.

[0351] Polypeptides and antibodies directed to polypeptides of the present invention are useful to provide immunological probes for differential identification of the tissue(s) (e.g., immunohistochemistry assays such as, for example, ABC immunoperoxidase (Hsu et al., J. Histochem. Cytochem. 29:577-580 (1981)) or cell type(s) (e.g., immunocytochemistry assays).

[0352] Antibodies can be used to assay levels of polypeptides encoded by polynucleotides of the invention in a biological sample using classical immunohistological methods known to those of skill in the art (e.g., see Jalkanen, et al., J. Cell. Biol. 101:976-985 (1985); Jalkanen, et al., J. Cell. Biol. 105:3087-3096 (1987)). Other antibody-based methods useful for detecting protein gene expression include immunoassays, such as the enzyme linked immunosorbent assay (ELISA) and the radioimmunoassay (RIA). Suitable antibody assay labels are known in the art and include enzyme labels, such as, glucose oxidase; radioisotopes, such as iodine ( $^{131}\text{I}$ ,  $^{125}\text{I}$ ,  $^{123}\text{I}$ ,  $^{121}\text{I}$ ), carbon ( $^{14}\text{C}$ ), sulfur ( $^{35}\text{S}$ ), tritium ( $^3\text{H}$ ), indium ( $^{115\text{m}}\text{In}$ ,  $^{113\text{m}}\text{In}$ ,  $^{112}\text{In}$ ,  $^{111}\text{In}$ ), and technetium ( $^{99}\text{Tc}$ ,  $^{99\text{m}}\text{Tc}$ ), thallium ( $^{201}\text{Tl}$ ), gallium ( $^{68}\text{Ga}$ ,  $^{67}\text{Ga}$ ), palladium ( $^{103}\text{Pd}$ ), molybdenum ( $^{99}\text{Mo}$ ), xenon ( $^{133}\text{Xe}$ ), fluorine ( $^{18}\text{F}$ ),  $^{153}\text{Sm}$ ,  $^{177}\text{Lu}$ ,  $^{159}\text{Gd}$ ,  $^{149}\text{Pm}$ ,  $^{140}\text{La}$ ,  $^{175}\text{Yb}$ ,  $^{166}\text{Ho}$ ,  $^{90}\text{Y}$ ,  $^{47}\text{Sc}$ ,  $^{186}\text{Re}$ ,  $^{188}\text{Re}$ ,  $^{142}\text{Pr}$ ,  $^{105}\text{Rh}$ ,  $^{97}\text{Ru}$ ; luminescent labels, such as luminol; and fluorescent labels, such as fluorescein and rhodamine, and biotin.

[0353] In addition to assaying levels of polypeptide of the present invention in a biological sample, proteins can also be detected *in vivo* by imaging. Antibody labels or markers for *in vivo* imaging of protein include those detectable by X-radiography, NMR or ESR. For X-radiography, suitable labels include radioisotopes such as barium or cesium, which emit detectable radiation but are not overtly harmful to the subject. Suitable markers for NMR and ESR include those with a detectable characteristic spin, such as deuterium, which may be incorporated into the antibody by labeling of nutrients for the relevant hybridoma.

[0354] A protein-specific antibody or antibody fragment which has been labeled with an appropriate detectable imaging moiety, such as a radioisotope (for example,  $^{131}\text{I}$ ,  $^{112}\text{In}$ ,  $^{99\text{m}}\text{Tc}$ ,  $^{131}\text{I}$ ,  $^{125}\text{I}$ ,  $^{123}\text{I}$ ,  $^{121}\text{I}$ ), carbon ( $^{14}\text{C}$ ), sulfur ( $^{35}\text{S}$ ), tritium ( $^3\text{H}$ ), indium ( $^{115\text{m}}\text{In}$ ,  $^{113\text{m}}\text{In}$ ,  $^{112}\text{In}$ ,  $^{111}\text{In}$ ),

and technetium ( $^{99}\text{Tc}$ ,  $^{99\text{m}}\text{Tc}$ ), thallium ( $^{201}\text{Tl}$ ), gallium ( $^{68}\text{Ga}$ ,  $^{67}\text{Ga}$ ), palladium ( $^{103}\text{Pd}$ ), molybdenum ( $^{99}\text{Mo}$ ), xenon ( $^{133}\text{Xe}$ ), fluorine ( $^{18}\text{F}$ ,  $^{153}\text{Sm}$ ,  $^{177}\text{Lu}$ ,  $^{159}\text{Gd}$ ,  $^{149}\text{Pm}$ ,  $^{140}\text{La}$ ,  $^{175}\text{Yb}$ ,  $^{166}\text{Ho}$ ,  $^{90}\text{Y}$ ,  $^{47}\text{Sc}$ ,  $^{186}\text{Re}$ ,  $^{188}\text{Re}$ ,  $^{142}\text{Pr}$ ,  $^{105}\text{Rh}$ ,  $^{97}\text{Ru}$ ), a radio-opaque substance, or a material detectable by nuclear magnetic resonance, is introduced (for example, parenterally, subcutaneously or intraperitoneally) into the mammal to be examined for immune system disorder. It will be understood in the art that the size of the subject and the imaging system used will determine the quantity of imaging moiety needed to produce diagnostic images. In the case of a radioisotope moiety, for a human subject, the quantity of radioactivity injected will normally range from about 5 to 20 millicuries of  $^{99\text{m}}\text{Tc}$ . The labeled antibody or antibody fragment will then preferentially accumulate at the location of cells which express the polypeptide encoded by a polynucleotide of the invention. *In vivo* tumor imaging is described in S.W. Burchiel et al., "Immunopharmacokinetics of Radiolabeled Antibodies and Their Fragments" (Chapter 13 in *Tumor Imaging: The Radiochemical Detection of Cancer*, S.W. Burchiel and B. A. Rhodes, eds., Masson Publishing Inc. (1982)).

[0355] In one embodiment, the invention provides a method for the specific delivery of compositions of the invention to cells by administering polypeptides of the invention (e.g., polypeptides encoded by polynucleotides of the invention and/or antibodies) that are associated with heterologous polypeptides or nucleic acids. In one example, the invention provides a method for delivering a therapeutic protein into the targeted cell. In another example, the invention provides a method for delivering a single stranded nucleic acid (e.g., antisense or ribozymes) or double stranded nucleic acid (e.g., DNA that can integrate into the cell's genome or replicate episomally and that can be transcribed) into the targeted cell.

[0356] In another embodiment, the invention provides a method for the specific destruction of cells (e.g., the destruction of tumor cells) by administering polypeptides of the invention in association with toxins or cytotoxic prodrugs.

[0357] By "toxin" is meant one or more compounds that bind and activate endogenous cytotoxic effector systems, radioisotopes, holotoxins, modified toxins, catalytic subunits of toxins, or any molecules or enzymes not normally present in or on the surface of a cell that under defined conditions cause the cell's death. Toxins that may be used according to the methods of the invention include, but are not limited to, radioisotopes known in the art, compounds such as, for example, antibodies (or complement fixing containing portions thereof) that bind an inherent or induced endogenous cytotoxic effector system, thymidine

kinase, endonuclease, RNase, alpha toxin, ricin, abrin, *Pseudomonas* exotoxin A, diphtheria toxin, saporin, momordin, gelonin, pokeweed antiviral protein, alpha-sarcin and cholera toxin. "Toxin" also includes a cytostatic or cytotoxic agent, a therapeutic agent or a radioactive metal ion, e.g., alpha-emitters such as, for example,  $^{213}\text{Bi}$ , or other radioisotopes such as, for example,  $^{103}\text{Pd}$ ,  $^{133}\text{Xe}$ ,  $^{131}\text{I}$ ,  $^{68}\text{Ge}$ ,  $^{57}\text{Co}$ ,  $^{65}\text{Zn}$ ,  $^{85}\text{Sr}$ ,  $^{32}\text{P}$ ,  $^{35}\text{S}$ ,  $^{90}\text{Y}$ ,  $^{153}\text{Sm}$ ,  $^{153}\text{Gd}$ ,  $^{169}\text{Yb}$ ,  $^{51}\text{Cr}$ ,  $^{54}\text{Mn}$ ,  $^{75}\text{Se}$ ,  $^{113}\text{Sn}$ ,  $^{90}\text{Yttrium}$ ,  $^{117}\text{In}$ ,  $^{186}\text{Rhenium}$ ,  $^{166}\text{Holmium}$ , and  $^{188}\text{Rhenium}$ ; luminescent labels, such as luminol; and fluorescent labels, such as fluorescein and rhodamine, and biotin. In a specific embodiment, the invention provides a method for the specific destruction of cells (e.g., the destruction of tumor cells) by administering polypeptides of the invention or antibodies of the invention in association with the radioisotope  $^{90}\text{Y}$ . In another specific embodiment, the invention provides a method for the specific destruction of cells (e.g., the destruction of tumor cells) by administering polypeptides of the invention or antibodies of the invention in association with the radioisotope  $^{111}\text{In}$ . In a further specific embodiment, the invention provides a method for the specific destruction of cells (e.g., the destruction of tumor cells) by administering polypeptides of the invention or antibodies of the invention in association with the radioisotope  $^{131}\text{I}$ .

[0358] Techniques known in the art may be applied to label polypeptides of the invention (including antibodies). Such techniques include, but are not limited to, the use of bifunctional conjugating agents (see e.g., U.S. Patent Nos. 5,756,065; 5,714,631; 5,696,239; 5,652,361; 5,505,931; 5,489,425; 5,435,990; 5,428,139; 5,342,604; 5,274,119; 4,994,560; and 5,808,003; the contents of each of which are hereby incorporated by reference in its entirety).

[0359] Thus, the invention provides a diagnostic method of a disorder, which involves (a) assaying the expression level of a polypeptide of the present invention in cells or body fluid of an individual; and (b) comparing the assayed polypeptide expression level with a standard polypeptide expression level, whereby an increase or decrease in the assayed polypeptide expression level compared to the standard expression level is indicative of a disorder. With respect to cancer, the presence of a relatively high amount of transcript in biopsied tissue from an individual may indicate a predisposition for the development of the disease, or may provide a means for detecting the disease prior to the appearance of actual clinical symptoms. A more definitive diagnosis of this type may allow health professionals to employ

preventative measures or aggressive treatment earlier thereby preventing the development or further progression of the cancer.

[0360] Moreover, polypeptides of the present invention can be used to treat or prevent diseases or conditions such as, for example, neural disorders, immune system disorders, muscular disorders, reproductive disorders, gastrointestinal disorders, pulmonary disorders, cardiovascular disorders, renal disorders, proliferative disorders, and/or cancerous diseases and conditions. For example, patients can be administered a polypeptide of the present invention in an effort to replace absent or decreased levels of the polypeptide (e.g., insulin), to supplement absent or decreased levels of a different polypeptide (e.g., hemoglobin S for hemoglobin B, SOD, catalase, DNA repair proteins), to inhibit the activity of a polypeptide (e.g., an oncogene or tumor suppressor), to activate the activity of a polypeptide (e.g., by binding to a receptor), to reduce the activity of a membrane bound receptor by competing with it for free ligand (e.g., soluble TNF receptors used in reducing inflammation); or to bring about a desired response (e.g., blood vessel growth inhibition, enhancement of the immune response to proliferative cells or tissues).

[0361] Similarly, antibodies directed to a polypeptide of the present invention can also be used to treat disease (as described *supra*, and elsewhere herein). For example, administration of an antibody directed to a polypeptide of the present invention can bind, and/or neutralize the polypeptide, and/or reduce overproduction of the polypeptide. Similarly, administration of an antibody can activate the polypeptide, such as by binding to a polypeptide bound to a membrane (receptor).

[0362] At the very least, the polypeptides of the present invention can be used as molecular weight markers on SDS-PAGE gels or on molecular sieve gel filtration columns using methods well known to those of skill in the art. Polypeptides can also be used to raise antibodies, which in turn are used to measure protein expression from a recombinant cell, as a way of assessing transformation of the host cell. Moreover, the polypeptides of the present invention can be used to test the biological activities described herein.

#### **Diagnostic Assays**

[0363] The compounds of the present invention are useful for diagnosis, treatment, prevention and/or prognosis of various disorders in mammals, preferably humans. Such disorders include, but are not limited to, those described herein under the section heading



“Biological Activities”.

[0364] For a number of disorders, substantially altered (increased or decreased) levels of gene expression can be detected in tissues, cells or bodily fluids (e.g., sera, plasma, urine, semen, synovial fluid or spinal fluid) taken from an individual having such a disorder, relative to a “standard” gene expression level, that is, the expression level in tissues or bodily fluids from an individual not having the disorder. Thus, the invention provides a diagnostic method useful during diagnosis of a disorder, which involves measuring the expression level of the gene encoding the polypeptide in tissues, cells or body fluid from an individual and comparing the measured gene expression level with a standard gene expression level, whereby an increase or decrease in the gene expression level(s) compared to the standard is indicative of a disorder. These diagnostic assays may be performed *in vivo* or *in vitro*, such as, for example, on blood samples, biopsy tissue or autopsy tissue.

[0365] The present invention is also useful as a prognostic indicator, whereby patients exhibiting enhanced or depressed gene expression will experience a worse clinical outcome relative to patients expressing the gene at a level nearer the standard level.

[0366] In certain embodiments, a polypeptide of the invention, or polynucleotides, antibodies, agonists, or antagonists corresponding to that polypeptide, may be used to diagnose and/or prognose diseases and/or disorders associated with the tissue(s) in which the polypeptide of the invention is expressed, including one, two, three, four, five, or more tissues disclosed in Table 1, column 8 (Tissue Distribution Library Code).

[0367] By “assaying the expression level of the gene encoding the polypeptide” is intended qualitatively or quantitatively measuring or estimating the level of the polypeptide of the invention or the level of the mRNA encoding the polypeptide of the invention in a first biological sample either directly (e.g., by determining or estimating absolute protein level or mRNA level) or relatively (e.g., by comparing to the polypeptide level or mRNA level in a second biological sample). Preferably, the polypeptide expression level or mRNA level in the first biological sample is measured or estimated and compared to a standard polypeptide level or mRNA level, the standard being taken from a second biological sample obtained from an individual not having the disorder or being determined by averaging levels from a population of individuals not having the disorder. As will be appreciated in the art, once a standard polypeptide level or mRNA level is known, it can be used repeatedly as a standard for comparison.

[0368] By "biological sample" is intended any biological sample obtained from an individual, cell line, tissue culture, or other source containing polypeptides of the invention (including portions thereof) or mRNA. As indicated, biological samples include body fluids (such as sera, plasma, urine, synovial fluid and spinal fluid) and tissue sources found to express the full length or fragments thereof of a polypeptide or mRNA. Methods for obtaining tissue biopsies and body fluids from mammals are well known in the art. Where the biological sample is to include mRNA, a tissue biopsy is the preferred source.

[0369] Total cellular RNA can be isolated from a biological sample using any suitable technique such as the single-step guanidinium-thiocyanate-phenol-chloroform method described in Chomczynski and Sacchi, *Anal. Biochem.* 162:156-159 (1987). Levels of mRNA encoding the polypeptides of the invention are then assayed using any appropriate method. These include Northern blot analysis, S1 nuclease mapping, the polymerase chain reaction (PCR), reverse transcription in combination with the polymerase chain reaction (RT-PCR), and reverse transcription in combination with the ligase chain reaction (RT-LCR).

[0370] The present invention also relates to diagnostic assays such as quantitative and diagnostic assays for detecting levels of polypeptides of the invention, in a biological sample (e.g., cells and tissues), including determination of normal and abnormal levels of polypeptides. Thus, for instance, a diagnostic assay in accordance with the invention for detecting over-expression of polypeptides of the invention compared to normal control tissue samples may be used to detect the presence of tumors. Assay techniques that can be used to determine levels of a polypeptide, such as a polypeptide of the present invention in a sample derived from a host are well-known to those of skill in the art. Such assay methods include radioimmunoassays, competitive-binding assays, Western Blot analysis and ELISA assays. Assaying polypeptide levels in a biological sample can occur using any art-known method.

[0371] Assaying polypeptide levels in a biological sample can occur using antibody-based techniques. For example, polypeptide expression in tissues can be studied with classical immunohistological methods (Jalkanen et al., *J. Cell. Biol.* 101:976-985 (1985); Jalkanen, M., et al., *J. Cell. Biol.* 105:3087-3096 (1987)). Other antibody-based methods useful for detecting polypeptide gene expression include immunoassays, such as the enzyme linked immunosorbent assay (ELISA) and the radioimmunoassay (RIA). Suitable antibody assay labels are known in the art and include enzyme labels, such as, glucose oxidase, and radioisotopes, such as iodine ( $^{125}\text{I}$ ,  $^{121}\text{I}$ ), carbon ( $^{14}\text{C}$ ), sulfur ( $^{35}\text{S}$ ), tritium ( $^3\text{H}$ ), indium ( $^{112}\text{In}$ ),

and technetium ( $^{99m}\text{Tc}$ ), and fluorescent labels, such as fluorescein and rhodamine, and biotin.

[0372] The tissue or cell type to be analyzed will generally include those which are known, or suspected, to express the gene of interest (such as, for example, cancer). The protein isolation methods employed herein may, for example, be such as those described in Harlow and Lane (Harlow, E. and Lane, D., 1988, "Antibodies: A Laboratory Manual", Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York), which is incorporated herein by reference in its entirety. The isolated cells can be derived from cell culture or from a patient. The analysis of cells taken from culture may be a necessary step in the assessment of cells that could be used as part of a cell-based gene therapy technique or, alternatively, to test the effect of compounds on the expression of the gene.

[0373] For example, antibodies, or fragments of antibodies, such as those described herein, may be used to quantitatively or qualitatively detect the presence of gene products or conserved variants or peptide fragments thereof. This can be accomplished, for example, by immunofluorescence techniques employing a fluorescently labeled antibody coupled with light microscopic, flow cytometric, or fluorimetric detection.

[0374] In a preferred embodiment, antibodies, or fragments of antibodies directed to any one or all of the predicted epitope domains of the polypeptides of the invention (shown in column 7 of Table 1) may be used to quantitatively or qualitatively detect the presence of gene products or conserved variants or peptide fragments thereof. This can be accomplished, for example, by immunofluorescence techniques employing a fluorescently labeled antibody coupled with light microscopic, flow cytometric, or fluorimetric detection.

[0375] In an additional preferred embodiment, antibodies, or fragments of antibodies directed to a conformational epitope of a polypeptide of the invention may be used to quantitatively or qualitatively detect the presence of gene products or conserved variants or peptide fragments thereof. This can be accomplished, for example, by immunofluorescence techniques employing a fluorescently labeled antibody coupled with light microscopic, flow cytometric, or fluorimetric detection.

[0376] The antibodies (or fragments thereof), and/or polypeptides of the present invention may, additionally, be employed histologically, as in immunofluorescence, immunoelectron microscopy or non-immunological assays, for in situ detection of gene products or conserved variants or peptide fragments thereof. In situ detection may be accomplished by removing a

histological specimen from a patient, and applying thereto a labeled antibody or polypeptide of the present invention. The antibody (or fragment thereof) or polypeptide is preferably applied by overlaying the labeled antibody (or fragment) onto a biological sample. Through the use of such a procedure, it is possible to determine not only the presence of the gene product, or conserved variants or peptide fragments, or polypeptide binding, but also its distribution in the examined tissue. Using the present invention, those of ordinary skill will readily perceive that any of a wide variety of histological methods (such as staining procedures) can be modified in order to achieve such in situ detection.

[0377] Immunoassays and non-immunoassays for gene products or conserved variants or peptide fragments thereof will typically comprise incubating a sample, such as a biological fluid, a tissue extract, freshly harvested cells, or lysates of cells which have been incubated in cell culture, in the presence of a detectably labeled antibody capable of binding gene products or conserved variants or peptide fragments thereof, and detecting the bound antibody by any of a number of techniques well-known in the art.

[0378] The biological sample may be brought in contact with and immobilized onto a solid phase support or carrier such as nitrocellulose, or other solid support which is capable of immobilizing cells, cell particles or soluble proteins. The support may then be washed with suitable buffers followed by treatment with the detectably labeled antibody or detectable polypeptide of the invention. The solid phase support may then be washed with the buffer a second time to remove unbound antibody or polypeptide. Optionally the antibody is subsequently labeled. The amount of bound label on solid support may then be detected by conventional means.

[0379] By "solid phase support or carrier" is intended any support capable of binding an antigen or an antibody. Well-known supports or carriers include glass, polystyrene, polypropylene, polyethylene, dextran, nylon, amylases, natural and modified celluloses, polyacrylamides, gabbros, and magnetite. The nature of the carrier can be either soluble to some extent or insoluble for the purposes of the present invention. The support material may have virtually any possible structural configuration so long as the coupled molecule is capable of binding to an antigen or antibody. Thus, the support configuration may be spherical, as in a bead, or cylindrical, as in the inside surface of a test tube, or the external surface of a rod. Alternatively, the surface may be flat such as a sheet, test strip, etc. Preferred supports include polystyrene beads. Those skilled in the art will know many other

suitable carriers for binding antibody or antigen, or will be able to ascertain the same by use of routine experimentation.

[0380] The binding activity of a given lot of antibody or antigen polypeptide may be determined according to well known methods. Those skilled in the art will be able to determine operative and optimal assay conditions for each determination by employing routine experimentation.

[0381] In addition to assaying polypeptide levels or polynucleotide levels in a biological sample obtained from an individual, polypeptide or polynucleotide can also be detected *in vivo* by imaging. For example, in one embodiment of the invention, polypeptides and/or antibodies of the invention are used to image diseased cells, such as neoplasms. In another embodiment, polynucleotides of the invention (e.g., polynucleotides complementary to all or a portion of an mRNA) and/or antibodies (e.g., antibodies directed to any one or a combination of the epitopes of a polypeptide of the invention, antibodies directed to a conformational epitope of a polypeptide of the invention, or antibodies directed to the full length polypeptide expressed on the cell surface of a mammalian cell) are used to image diseased or neoplastic cells.

[0382] Antibody labels or markers for *in vivo* imaging of polypeptides of the invention include those detectable by X-radiography, NMR, MRI, CAT-scans or ESR. For X-radiography, suitable labels include radioisotopes such as barium or cesium, which emit detectable radiation but are not overtly harmful to the subject. Suitable markers for NMR and ESR include those with a detectable characteristic spin, such as deuterium, which may be incorporated into the antibody by labeling of nutrients for the relevant hybridoma. Where *in vivo* imaging is used to detect enhanced levels of polypeptides for diagnosis in humans, it may be preferable to use human antibodies or "humanized" chimeric monoclonal antibodies. Such antibodies can be produced using techniques described herein or otherwise known in the art. For example methods for producing chimeric antibodies are known in the art. See, for review, Morrison, *Science* 229:1202 (1985); Oi et al., *BioTechniques* 4:214 (1986); Cabilly et al., U.S. Patent No. 4,816,567; Taniguchi et al., EP 171496; Morrison et al., EP 173494; Neuberger et al., WO 8601533; Robinson et al., WO 8702671; Boulianne et al., *Nature* 312:643 (1984); Neuberger et al., *Nature* 314:268 (1985).

[0383] Additionally, any polypeptides of the invention whose presence can be detected, can be administered. For example, polypeptides of the invention labeled with a radio-opaque

or other appropriate compound can be administered and visualized *in vivo*, as discussed, above for labeled antibodies. Further, such polypeptides can be utilized for *in vitro* diagnostic procedures.

[0384] A polypeptide-specific antibody or antibody fragment which has been labeled with an appropriate detectable imaging moiety, such as a radioisotope (for example,  $^{131}\text{I}$ ,  $^{112}\text{In}$ ,  $^{99\text{m}}\text{Tc}$ ), a radio-opaque substance, or a material detectable by nuclear magnetic resonance, is introduced (for example, parenterally, subcutaneously or intraperitoneally) into the mammal to be examined for a disorder. It will be understood in the art that the size of the subject and the imaging system used will determine the quantity of imaging moiety needed to produce diagnostic images. In the case of a radioisotope moiety, for a human subject, the quantity of radioactivity injected will normally range from about 5 to 20 millicuries of  $^{99\text{m}}\text{Tc}$ . The labeled antibody or antibody fragment will then preferentially accumulate at the location of cells which contain the antigenic protein. *In vivo* tumor imaging is described in S.W. Burchiel et al., "Immunopharmacokinetics of Radiolabeled Antibodies and Their Fragments" (Chapter 13 in *Tumor Imaging: The Radiochemical Detection of Cancer*, S.W. Burchiel and B. A. Rhodes, eds., Masson Publishing Inc. (1982)).

[0385] With respect to antibodies, one of the ways in which an antibody of the present invention can be detectably labeled is by linking the same to a reporter enzyme and using the linked product in an enzyme immunoassay (EIA) (Voller, A., "The Enzyme Linked Immunosorbent Assay (ELISA)", 1978, Diagnostic Horizons 2:1-7, Microbiological Associates Quarterly Publication, Walkersville, MD); Voller et al., *J. Clin. Pathol.* 31:507-520 (1978); Butler, J.E., *Meth. Enzymol.* 73:482-523 (1981); Maggio, E. (ed.), 1980, Enzyme Immunoassay, CRC Press, Boca Raton, FL.; Ishikawa, E. et al., (eds.), 1981, Enzyme Immunoassay, Kigaku Shoin, Tokyo). The reporter enzyme which is bound to the antibody will react with an appropriate substrate, preferably a chromogenic substrate, in such a manner as to produce a chemical moiety which can be detected, for example, by spectrophotometric, fluorimetric or by visual means. Reporter enzymes which can be used to detectably label the antibody include, but are not limited to, malate dehydrogenase, staphylococcal nuclease, delta-5-steroid isomerase, yeast alcohol dehydrogenase, alpha-glycerophosphate, dehydrogenase, triose phosphate isomerase, horseradish peroxidase, alkaline phosphatase, asparaginase, glucose oxidase, beta-galactosidase, ribonuclease, urease, catalase, glucose-6-phosphate dehydrogenase, glucoamylase and acetylcholinesterase. Additionally, the

detection can be accomplished by colorimetric methods which employ a chromogenic substrate for the reporter enzyme. Detection may also be accomplished by visual comparison of the extent of enzymatic reaction of a substrate in comparison with similarly prepared standards.

[0386] Detection may also be accomplished using any of a variety of other immunoassays. For example, by radioactively labeling the antibodies or antibody fragments, it is possible to detect polypeptides through the use of a radioimmunoassay (RIA) (see, for example, Weintraub, B., Principles of Radioimmunoassays, Seventh Training Course on Radioligand Assay Techniques, The Endocrine Society, March, 1986, which is incorporated by reference herein). The radioactive isotope can be detected by means including, but not limited to, a gamma counter, a scintillation counter, or autoradiography.

[0387] It is also possible to label the antibody with a fluorescent compound. When the fluorescently labeled antibody is exposed to light of the proper wave length, its presence can then be detected due to fluorescence. Among the most commonly used fluorescent labeling compounds are fluorescein isothiocyanate, rhodamine, phycoerythrin, phycocyanin, allophycocyanin, ophthaldehyde and fluorescamine.

[0388] The antibody can also be detectably labeled using fluorescence emitting metals such as  $^{152}\text{Eu}$ , or others of the lanthanide series. These metals can be attached to the antibody using such metal chelating groups as diethylenetriaminepentacetic acid (DTPA) or ethylenediaminetetraacetic acid (EDTA).

[0389] The antibody also can be detectably labeled by coupling it to a chemiluminescent compound. The presence of the chemiluminescent-tagged antibody is then determined by detecting the presence of luminescence that arises during the course of a chemical reaction. Examples of particularly useful chemiluminescent labeling compounds are luminol, isoluminol, theromatic acridinium ester, imidazole, acridinium salt and oxalate ester.

[0390] Likewise, a bioluminescent compound may be used to label the antibody of the present invention. Bioluminescence is a type of chemiluminescence found in biological systems in, which a catalytic protein increases the efficiency of the chemiluminescent reaction. The presence of a bioluminescent protein is determined by detecting the presence of luminescence. Important bioluminescent compounds for purposes of labeling are luciferin, luciferase and aequorin.

**Methods for Detecting Diseases, Including Cancer**

[0391] In general, a disease may be detected in a patient based on the presence of one or more proteins of the invention and/or polynucleotides encoding such proteins in a biological sample (for example, blood, sera, urine, and/or tumor biopsies) obtained from the patient. In other words, such proteins may be used as markers to indicate the presence or absence of a disease or disorder, including cancer and/or as described elsewhere herein. In addition, such proteins may be useful for the detection of other diseases and cancers. The binding agents provided herein generally permit detection of the level of antigen that binds to the agent in the biological sample. Polynucleotide primers and probes may be used to detect the level of mRNA encoding polypeptides of the invention, which is also indicative of the presence or absence of a disease or disorder, including cancer. In general, polypeptides of the invention should be present at a level that is at least three fold higher in diseased tissue than in normal tissue.

[0392] There are a variety of assay formats known to those of ordinary skill in the art for using a binding agent to detect polypeptide markers in a sample. See, e.g., Harlow and Lane, *supra*. In general, the presence or absence of a disease in a patient may be determined by (a) contacting a biological sample obtained from a patient with a binding agent; (b) detecting in the sample a level of polypeptide that binds to the binding agent; and (c) comparing the level of polypeptide with a predetermined cut-off value.

[0393] In a preferred embodiment, the assay involves the use of a binding agent(s) immobilized on a solid support to bind to and remove the polypeptide of the invention from the remainder of the sample. The bound polypeptide may then be detected using a detection reagent that contains a reporter group and specifically binds to the binding agent/polypeptide complex. Such detection reagents may comprise, for example, a binding agent that specifically binds to the polypeptide or an antibody or other agent that specifically binds to the binding agent, such as an anti-immunoglobulin, protein G, protein A or a lectin. Alternatively, a competitive assay may be utilized, in which a polypeptide is labeled with a reporter group and allowed to bind to the immobilized binding agent after incubation of the binding agent with the sample. The extent to which components of the sample inhibit the binding of the labeled polypeptide to the binding agent is indicative of the reactivity of the sample with the immobilized binding agent. Suitable polypeptides for use within such assays



include polypeptides of the invention and portions thereof, or antibodies, to which the binding agent binds, as described above.

[0394] The solid support may be any material known to those of skill in the art to which polypeptides of the invention may be attached. For example, the solid support may be a test well in a microtiter plate or a nitrocellulose or other suitable membrane. Alternatively, the support may be a bead or disc, such as glass fiberglass, latex or a plastic material such as polystyrene or polyvinylchloride. The support may also be a magnetic particle or a fiber optic sensor, such as those disclosed, for example, in U.S. Patent No. 5,359,681. The binding agent may be immobilized on the solid support using a variety of techniques known to those of skill in the art, which are amply described in the patent and scientific literature. In the context of the present invention, the term "immobilization" refers to both noncovalent association, such as adsorption, and covalent attachment (which may be a direct linkage between the agent and functional groups on the support or may be a linkage by way of a cross-linking agent). Immobilization by adsorption to a well in a microtiter plate or to a membrane is preferred. In such cases, adsorption may be achieved by contacting the binding agent, in a suitable buffer, with the solid support for the suitable amount of time. The contact time varies with temperature, but is typically between about 1 hour and about 1 day. In general, contacting a well of plastic microtiter plate (such as polystyrene or polyvinylchloride) with an amount of binding agent ranging from about 10 ng to about 10 ug, and preferably about 100 ng to about 1 ug, is sufficient to immobilize an adequate amount of binding agent.

[0395] Covalent attachment of binding agent to a solid support may generally be achieved by first reacting the support with a bifunctional reagent that will react with both the support and a functional group, such as a hydroxyl or amino group, on the binding agent. For example, the binding agent may be covalently attached to supports having an appropriate polymer coating using benzoquinone or by condensation of an aldehyde group on the support with an amine and an active hydrogen on the binding partner (see, e.g., Pierce Immunotechnology Catalog and Handbook, 1991, at A12-A13).

**Gene Therapy Methods**

[0396] Also encompassed by the invention are gene therapy methods for treating or preventing disorders, diseases and conditions. The gene therapy methods relate to the introduction of nucleic acid (DNA, RNA and antisense DNA or RNA) sequences into an animal to achieve expression of the polypeptide of the present invention. This method requires a polynucleotide which codes for a polypeptide of the present invention operatively linked to a promoter and any other genetic elements necessary for the expression of the polypeptide by the target tissue. Such gene therapy and delivery techniques are known in the art, see, for example, WO90/11092, which is herein incorporated by reference.

[0397] Thus, for example, cells from a patient may be engineered with a polynucleotide (DNA or RNA) comprising a promoter operably linked to a polynucleotide of the present invention ex vivo, with the engineered cells then being provided to a patient to be treated with the polypeptide of the present invention. Such methods are well-known in the art. For example, see Belldgrun, A., et al., J. Natl. Cancer Inst. 85: 207-216 (1993); Ferrantini, M. et al., Cancer Research 53: 1107-1112 (1993); Ferrantini, M. et al., J. Immunology 153: 4604-4615 (1994); Kaido, T., et al., Int. J. Cancer 60: 221-229 (1995); Ogura, H., et al., Cancer Research 50: 5102-5106 (1990); Santodonato, L., et al., Human Gene Therapy 7:1-10 (1996); Santodonato, L., et al., Gene Therapy 4:1246-1255 (1997); and Zhang, J.-F. et al., Cancer Gene Therapy 3: 31-38 (1996)), which are herein incorporated by reference. In one embodiment, the cells which are engineered are arterial cells. The arterial cells may be reintroduced into the patient through direct injection to the artery, the tissues surrounding the artery, or through catheter injection.

[0398] As discussed in more detail below, the polynucleotide constructs can be delivered by any method that delivers injectable materials to the cells of an animal, such as, injection into the interstitial space of tissues (heart, muscle, skin, lung, liver, and the like). The polynucleotide constructs may be delivered in a pharmaceutically acceptable liquid or aqueous carrier.

[0399] In one embodiment, the polynucleotide of the present invention is delivered as a naked polynucleotide. The term "naked" polynucleotide, DNA or RNA refers to sequences that are free from any delivery vehicle that acts to assist, promote or facilitate entry into the cell, including viral sequences, viral particles, liposome formulations, lipofectin or precipitating agents and the like. However, the polynucleotide of the present invention can

also be delivered in liposome formulations and lipofectin formulations and the like can be prepared by methods well known to those skilled in the art. Such methods are described, for example, in U.S. Patent Nos. 5,593,972, 5,589,466, and 5,580,859, which are herein incorporated by reference.

[0400] The polynucleotide vector constructs used in the gene therapy method are preferably constructs that will not integrate into the host genome nor will they contain sequences that allow for replication. Appropriate vectors include pWLNEO, pSV2CAT, pOG44, pXT1 and pSG available from Stratagene; pSVK3, pBPV, pMSG and pSVL available from Pharmacia; and pEF1/V5, pcDNA3.1, and pRc/CMV2 available from Invitrogen. Other suitable vectors will be readily apparent to the skilled artisan.

[0401] Any strong promoter known to those skilled in the art can be used for driving the expression of the polynucleotide sequence. Suitable promoters include adenoviral promoters, such as the adenoviral major late promoter; or heterologous promoters, such as the cytomegalovirus (CMV) promoter; the respiratory syncytial virus (RSV) promoter; inducible promoters, such as the MMT promoter, the metallothionein promoter; heat shock promoters; the albumin promoter; the ApoA1 promoter; human globin promoters; viral thymidine kinase promoters, such as the Herpes Simplex thymidine kinase promoter; retroviral LTRs; the b-actin promoter; and human growth hormone promoters. The promoter also may be the native promoter for the polynucleotide of the present invention.

[0402] Unlike other gene therapy techniques, one major advantage of introducing naked nucleic acid sequences into target cells is the transitory nature of the polynucleotide synthesis in the cells. Studies have shown that non-replicating DNA sequences can be introduced into cells to provide production of the desired polypeptide for periods of up to six months.

[0403] The polynucleotide construct can be delivered to the interstitial space of tissues within the an animal, including of muscle, skin, brain, lung, liver, spleen, bone marrow, thymus, heart, lymph, blood, bone, cartilage, pancreas, kidney, gall bladder, stomach, intestine, testis, ovary, uterus, rectum, nervous system, eye, gland, and connective tissue. Interstitial space of the tissues comprises the intercellular, fluid, mucopolysaccharide matrix among the reticular fibers of organ tissues, elastic fibers in the walls of vessels or chambers, collagen fibers of fibrous tissues, or that same matrix within connective tissue ensheathing muscle cells or in the lacunae of bone. It is similarly the space occupied by the plasma of the circulation and the lymph fluid of the lymphatic channels. Delivery to the interstitial space of

muscle tissue is preferred for the reasons discussed below. They may be conveniently delivered by injection into the tissues comprising these cells. They are preferably delivered to and expressed in persistent, non-dividing cells which are differentiated, although delivery and expression may be achieved in non-differentiated or less completely differentiated cells, such as, for example, stem cells of blood or skin fibroblasts. *In vivo* muscle cells are particularly competent in their ability to take up and express polynucleotides.

[0404] For the naked nucleic acid sequence injection, an effective dosage amount of DNA or RNA will be in the range of from about 0.05 mg/kg body weight to about 50 mg/kg body weight. Preferably the dosage will be from about 0.005 mg/kg to about 20 mg/kg and more preferably from about 0.05 mg/kg to about 5 mg/kg. Of course, as the artisan of ordinary skill will appreciate, this dosage will vary according to the tissue site of injection. The appropriate and effective dosage of nucleic acid sequence can readily be determined by those of ordinary skill in the art and may depend on the condition being treated and the route of administration.

[0405] The preferred route of administration is by the parenteral route of injection into the interstitial space of tissues. However, other parenteral routes may also be used, such as, inhalation of an aerosol formulation particularly for delivery to lungs or bronchial tissues, throat or mucous membranes of the nose. In addition, naked DNA constructs can be delivered to arteries during angioplasty by the catheter used in the procedure.

[0406] The naked polynucleotides are delivered by any method known in the art, including, but not limited to, direct needle injection at the delivery site, intravenous injection, topical administration, catheter infusion, and so-called "gene guns". These delivery methods are known in the art.

[0407] The constructs may also be delivered with delivery vehicles such as viral sequences, viral particles, liposome formulations, lipofectin, precipitating agents, etc. Such methods of delivery are known in the art.

[0408] In certain embodiments, the polynucleotide constructs are complexed in a liposome preparation. Liposomal preparations for use in the instant invention include cationic (positively charged), anionic (negatively charged) and neutral preparations. However, cationic liposomes are particularly preferred because a tight charge complex can be formed between the cationic liposome and the polyanionic nucleic acid. Cationic liposomes have been shown to mediate intracellular delivery of plasmid DNA (Felgner et al., Proc. Natl.

Acad. Sci. USA (1987) 84:7413-7416, which is herein incorporated by reference); mRNA (Malone et al., Proc. Natl. Acad. Sci. USA (1989) 86:6077-6081, which is herein incorporated by reference); and purified transcription factors (Debs et al., J. Biol. Chem. (1990) 265:10189-10192, which is herein incorporated by reference), in functional form.

[0409] Cationic liposomes are readily available. For example, N[1-2,3-dioleoyloxy)propyl]-N,N,N-triethylammonium (DOTMA) liposomes are particularly useful and are available under the trademark Lipofectin, from GIBCO BRL, Grand Island, N.Y. (See, also, Felgner et al., Proc. Natl. Acad. Sci. USA (1987) 84:7413-7416, which is herein incorporated by reference). Other commercially available liposomes include transfectace (DDAB/DOPE) and DOTAP/DOPE (Boehringer).

[0410] Other cationic liposomes can be prepared from readily available materials using techniques well known in the art. See, e.g. PCT Publication No. WO 90/11092 (which is herein incorporated by reference) for a description of the synthesis of DOTAP (1,2-bis(oleoyloxy)-3-(trimethylammonio)propane) liposomes. Preparation of DOTMA liposomes is explained in the literature, see, e.g., P. Felgner et al., Proc. Natl. Acad. Sci. USA 84:7413-7417, which is herein incorporated by reference. Similar methods can be used to prepare liposomes from other cationic lipid materials.

[0411] Similarly, anionic and neutral liposomes are readily available, such as from Avanti Polar Lipids (Birmingham, Ala.), or can be easily prepared using readily available materials. Such materials include phosphatidyl choline, cholesterol, phosphatidyl ethanolamine, dioleoylphosphatidyl choline (DOPC), dioleoylphosphatidyl glycerol (DOPG), dioleoylphosphatidyl ethanolamine (DOPE), among others. These materials can also be mixed with the DOTMA and DOTAP starting materials in appropriate ratios. Methods for making liposomes using these materials are well known in the art.

[0412] For example, commercially dioleoylphosphatidyl choline (DOPC), dioleoylphosphatidyl glycerol (DOPG), and dioleoylphosphatidyl ethanolamine (DOPE) can be used in various combinations to make conventional liposomes, with or without the addition of cholesterol. Thus, for example, DOPG/DOPC vesicles can be prepared by drying 50 mg each of DOPG and DOPC under a stream of nitrogen gas into a sonication vial. The sample is placed under a vacuum pump overnight and is hydrated the following day with deionized water. The sample is then sonicated for 2 hours in a capped vial, using a Heat Systems model 350 sonicator equipped with an inverted cup (bath type) probe at the

maximum setting while the bath is circulated at 15EC. Alternatively, negatively charged vesicles can be prepared without sonication to produce multilamellar vesicles or by extrusion through nucleopore membranes to produce unilamellar vesicles of discrete size. Other methods are known and available to those of skill in the art.

[0413] The liposomes can comprise multilamellar vesicles (MLVs), small unilamellar vesicles (SUVs), or large unilamellar vesicles (LUVs), with SUVs being preferred. The various liposome-nucleic acid complexes are prepared using methods well known in the art. See, e.g., Straubinger et al., *Methods of Immunology* (1983), 101:512-527, which is herein incorporated by reference. For example, MLVs containing nucleic acid can be prepared by depositing a thin film of phospholipid on the walls of a glass tube and subsequently hydrating with a solution of the material to be encapsulated. SUVs are prepared by extended sonication of MLVs to produce a homogeneous population of unilamellar liposomes. The material to be entrapped is added to a suspension of preformed MLVs and then sonicated. When using liposomes containing cationic lipids, the dried lipid film is resuspended in an appropriate solution such as sterile water or an isotonic buffer solution such as 10 mM Tris/NaCl, sonicated, and then the preformed liposomes are mixed directly with the DNA. The liposome and DNA form a very stable complex due to binding of the positively charged liposomes to the cationic DNA. SUVs find use with small nucleic acid fragments. LUVs are prepared by a number of methods, well known in the art. Commonly used methods include  $\text{Ca}^{2+}$ -EDTA chelation (Papahadjopoulos et al., *Biochim. Biophys. Acta* (1975) 394:483; Wilson et al., *Cell* 17:77 (1979)); ether injection (Deamer, D. and Bangham, A., *Biochim. Biophys. Acta* 443:629 (1976); Ostro et al., *Biochem. Biophys. Res. Commun.* 76:836 (1977); Fraley et al., *Proc. Natl. Acad. Sci. USA* 76:3348 (1979)); detergent dialysis (Enoch, H. and Strittmatter, P., *Proc. Natl. Acad. Sci. USA* 76:145 (1979)); and reverse-phase evaporation (REV) (Fraley et al., *J. Biol. Chem.* 255:10431 (1980); Szoka, F. and Papahadjopoulos, D., *Proc. Natl. Acad. Sci. USA* 75:145 (1978); Schaefer-Ridder et al., *Science* 215:166 (1982)), which are herein incorporated by reference.

[0414] Generally, the ratio of DNA to liposomes will be from about 10:1 to about 1:10. Preferably, the ration will be from about 5:1 to about 1:5. More preferably, the ration will be about 3:1 to about 1:3. Still more preferably, the ratio will be about 1:1.

[0415] U.S. Patent No. 5,676,954 (which is herein incorporated by reference) reports on the injection of genetic material, complexed with cationic liposomes carriers, into mice. U.S.

Patent Nos. 4,897,355, 4,946,787, 5,049,386, 5,459,127, 5,589,466, 5,693,622, 5,580,859, 5,703,055, and international publication no. WO 94/9469 (which are herein incorporated by reference) provide cationic lipids for use in transfecting DNA into cells and mammals. U.S. Patent Nos. 5,589,466, 5,693,622, 5,580,859, 5,703,055, and international publication no. WO 94/9469 provide methods for delivering DNA-cationic lipid complexes to mammals.

[0416] In certain embodiments, cells are engineered, *ex vivo* or *in vivo*, using a retroviral particle containing RNA which comprises a sequence encoding a polypeptide of the present invention. Retroviruses from which the retroviral plasmid vectors may be derived include, but are not limited to, Moloney Murine Leukemia Virus, spleen necrosis virus, Rous sarcoma Virus, Harvey Sarcoma Virus, avian leukosis virus, gibbon ape leukemia virus, human immunodeficiency virus, Myeloproliferative Sarcoma Virus, and mammary tumor virus.

[0417] The retroviral plasmid vector is employed to transduce packaging cell lines to form producer cell lines. Examples of packaging cells which may be transfected include, but are not limited to, the PE501, PA317, R-2, R-AM, PA12, T19-14X, VT-19-17-H2, RCRE, RCRIP, GP+E-86, GP+envAm12, and DAN cell lines as described in Miller, Human Gene Therapy 1:5-14 (1990), which is incorporated herein by reference in its entirety. The vector may transduce the packaging cells through any means known in the art. Such means include, but are not limited to, electroporation, the use of liposomes, and  $\text{CaPO}_4$  precipitation. In one alternative, the retroviral plasmid vector may be encapsulated into a liposome, or coupled to a lipid, and then administered to a host.

[0418] The producer cell line generates infectious retroviral vector particles which include polynucleotide encoding a polypeptide of the present invention. Such retroviral vector particles then may be employed, to transduce eukaryotic cells, either *in vitro* or *in vivo*. The transduced eukaryotic cells will express a polypeptide of the present invention.

[0419] In certain other embodiments, cells are engineered, *ex vivo* or *in vivo*, with polynucleotide contained in an adenovirus vector. Adenovirus can be manipulated such that it encodes and expresses a polypeptide of the present invention, and at the same time is inactivated in terms of its ability to replicate in a normal lytic viral life cycle. Adenovirus expression is achieved without integration of the viral DNA into the host cell chromosome, thereby alleviating concerns about insertional mutagenesis. Furthermore, adenoviruses have been used as live enteric vaccines for many years with an excellent safety profile (Schwartz et al. Am. Rev. Respir. Dis. 109:233-238 (1974)). Finally, adenovirus mediated gene transfer

has been demonstrated in a number of instances including transfer of alpha-1-antitrypsin and CFTR to the lungs of cotton rats (Rosenfeld, M. A. et al. (1991) Science 252:431-434; Rosenfeld et al., (1992) Cell 68:143-155). Furthermore, extensive studies to attempt to establish adenovirus as a causative agent in human cancer were uniformly negative (Green, M. et al. (1979) Proc. Natl. Acad. Sci. USA 76:6606).

[0420] Suitable adenoviral vectors useful in the present invention are described, for example, in Kozarsky and Wilson, Curr. Opin. Genet. Devel. 3:499-503 (1993); Rosenfeld et al., Cell 68:143-155 (1992); Engelhardt et al., Human Genet. Ther. 4:759-769 (1993); Yang et al., Nature Genet. 7:362-369 (1994); Wilson et al., Nature 365:691-692 (1993); and U.S. Patent No. 5,652,224, which are herein incorporated by reference. For example, the adenovirus vector Ad2 is useful and can be grown in human 293 cells. These cells contain the E1 region of adenovirus and constitutively express E1a and E1b, which complement the defective adenoviruses by providing the products of the genes deleted from the vector. In addition to Ad2, other varieties of adenovirus (e.g., Ad3, Ad5, and Ad7) are also useful in the present invention.

[0421] Preferably, the adenoviruses used in the present invention are replication deficient. Replication deficient adenoviruses require the aid of a helper virus and/or packaging cell line to form infectious particles. The resulting virus is capable of infecting cells and can express a polynucleotide of interest which is operably linked to a promoter, but cannot replicate in most cells. Replication deficient adenoviruses may be deleted in one or more of all or a portion of the following genes: E1a, E1b, E3, E4, E2a, or L1 through L5.

[0422] In certain other embodiments, the cells are engineered, *ex vivo* or *in vivo*, using an adeno-associated virus (AAV). AAVs are naturally occurring defective viruses that require helper viruses to produce infectious particles (Muzyczka, N., Curr. Topics in Microbiol. Immunol. 158:07 (1992)). It is also one of the few viruses that may integrate its DNA into

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cloning methods, such as those found in Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Press (1989). The recombinant AAV vector is then transfected into packaging cells which are infected with a helper virus, using any standard technique, including lipofection, electroporation, calcium phosphate precipitation, etc. Appropriate helper viruses include adenoviruses, cytomegaloviruses, vaccinia viruses, or herpes viruses. Once the packaging cells are transfected and infected, they will produce infectious AAV viral particles which contain the polynucleotide construct. These viral particles are then used to transduce eukaryotic cells, either *ex vivo* or *in vivo*. The transduced cells will contain the polynucleotide construct integrated into its genome, and will express a polypeptide of the invention.

[0424] Another method of gene therapy involves operably associating heterologous control regions and endogenous polynucleotide sequences (e.g. encoding a polypeptide of the present invention) via homologous recombination (see, e.g., U.S. Patent No. 5,641,670, issued June 24, 1997; International Publication No. WO 96/29411, published September 26, 1996; International Publication No. WO 94/12650, published August 4, 1994; Koller et al., *Proc. Natl. Acad. Sci. USA* 86:8932-8935 (1989); and Zijlstra et al., *Nature* 342:435-438 (1989), which are herein incorporated by reference. This method involves the activation of a gene which is present in the target cells, but which is not normally expressed in the cells, or is expressed at a lower level than desired.

[0425] Polynucleotide constructs are made, using standard techniques known in the art, which contain the promoter with targeting sequences flanking the promoter. Suitable promoters are described herein. The targeting sequence is sufficiently complementary to an endogenous sequence to permit homologous recombination of the promoter-targeting sequence with the endogenous sequence. The targeting sequence will be sufficiently near the 5' end of the desired endogenous polynucleotide sequence so the promoter will be operably linked to the endogenous sequence upon homologous recombination.

[0426] The promoter and the targeting sequences can be amplified using PCR. Preferably, the amplified promoter contains distinct restriction enzyme sites on the 5' and 3' ends. Preferably, the 3' end of the first targeting sequence contains the same restriction enzyme site as the 5' end of the amplified promoter and the 5' end of the second targeting sequence contains the same restriction site as the 3' end of the amplified promoter. The amplified promoter and targeting sequences are digested and ligated together.

[0427] The promoter-targeting sequence construct is delivered to the cells, either as naked polynucleotide, or in conjunction with transfection-facilitating agents, such as liposomes, viral sequences, viral particles, whole viruses, lipofection, precipitating agents, etc., described in more detail above. The P promoter-targeting sequence can be delivered by any method, included direct needle injection, intravenous injection, topical administration, catheter infusion, particle accelerators, etc. The methods are described in more detail below.

[0428] The promoter-targeting sequence construct is taken up by cells. Homologous recombination between the construct and the endogenous sequence takes place, such that an endogenous sequence is placed under the control of the promoter. The promoter then drives the expression of the endogenous sequence.

[0429] The polynucleotide encoding a polypeptide of the present invention may contain a secretory signal sequence that facilitates secretion of the protein. Typically, the signal sequence is positioned in the coding region of the polynucleotide to be expressed towards or at the 5' end of the coding region. The signal sequence may be homologous or heterologous to the polynucleotide of interest and may be homologous or heterologous to the cells to be transfected. Additionally, the signal sequence may be chemically synthesized using methods known in the art.

[0430] Any mode of administration of any of the above-described polynucleotides constructs can be used so long as the mode results in the expression of one or more molecules in an amount sufficient to provide a therapeutic effect. This includes direct needle injection, systemic injection, catheter infusion, biolistic injectors, particle accelerators (i.e., "gene guns"), gelfoam sponge depots, other commercially available depot materials, osmotic pumps (e.g., Alza minipumps), oral or suppositorial solid (tablet or pill) pharmaceutical formulations, and decanting or topical applications during surgery. For example, direct injection of naked calcium phosphate-precipitated plasmid into rat liver and rat spleen or a protein-coated plasmid into the portal vein has resulted in gene expression of the foreign gene in the rat livers (Kaneda et al., Science 243:375 (1989)).

[0431] A preferred method of local administration is by direct injection. Preferably, a recombinant molecule of the present invention complexed with a delivery vehicle is administered by direct injection into or locally within the area of arteries. Administration of a composition locally within the area of arteries refers to injecting the composition centimeters and preferably, millimeters within arteries.

[0432] Another method of local administration is to contact a polynucleotide construct of the present invention in or around a surgical wound. For example, a patient can undergo surgery and the polynucleotide construct can be coated on the surface of tissue inside the wound or the construct can be injected into areas of tissue inside the wound.

[0433] Therapeutic compositions useful in systemic administration, include recombinant molecules of the present invention complexed to a targeted delivery vehicle of the present invention. Suitable delivery vehicles for use with systemic administration comprise liposomes comprising ligands for targeting the vehicle to a particular site. In specific embodiments, suitable delivery vehicles for use with systemic administration comprise liposomes comprising polypeptides of the invention for targeting the vehicle to a particular site.

[0434] Preferred methods of systemic administration, include intravenous injection, aerosol, oral and percutaneous (topical) delivery. Intravenous injections can be performed using methods standard in the art. Aerosol delivery can also be performed using methods standard in the art (see, for example, Stribling et al., Proc. Natl. Acad. Sci. USA 189:11277-11281, 1992, which is incorporated herein by reference). Oral delivery can be performed by complexing a polynucleotide construct of the present invention to a carrier capable of withstanding degradation by digestive enzymes in the gut of an animal. Examples of such carriers, include plastic capsules or tablets, such as those known in the art. Topical delivery can be performed by mixing a polynucleotide construct of the present invention with a lipophilic reagent (e.g., DMSO) that is capable of passing into the skin.

[0435] Determining an effective amount of substance to be delivered can depend upon a number of factors including, for example, the chemical structure and biological activity of the substance, the age and weight of the animal, the precise condition requiring treatment and its severity, and the route of administration. The frequency of treatments depends upon a number of factors, such as the amount of polynucleotide constructs administered per dose, as well as the health and history of the subject. The precise amount, number of doses, and timing of doses will be determined by the attending physician or veterinarian.

[0436] Therapeutic compositions of the present invention can be administered to any animal, preferably to mammals and birds. Preferred mammals include humans, dogs, cats, mice, rats, rabbits sheep, cattle, horses and pigs, with humans being particularly preferred.

**Biological Activities**

[0437] Polynucleotides or polypeptides, or agonists or antagonists of the present invention, can be used in assays to test for one or more biological activities. If these polynucleotides or polypeptides, or agonists or antagonists of the present invention, do exhibit activity in a particular assay, it is likely that these molecules may be involved in the diseases associated with the biological activity. Thus, the polynucleotides and polypeptides, and agonists or antagonists could be used to diagnose, prognose, prevent and/or treat the associated disease.

[0438] The plasma membrane associated polypeptides of the invention may, for example, (a) be involved in cell-cell interactions, cell-surface recognition, intercellular communication; (b) act as receptors; (c) provide structural links between the extracellular environment and the cytoskeleton-signaling network and thus help to regulate cell migration, differentiation, cell cycle progression, apoptosis, phagocytosis, ECM assembly, and metalloproteinase activity; or (d) be involved in transmembrane signal transduction and regulation of cellular proliferation, development, motility, and tumor cell growth and metastasis, in a number of different cell types.

[00100] In one embodiment, the invention provides a method for the specific delivery of compositions of the invention to cells by administering polypeptides of the invention (e.g., polypeptides of the invention or anti-polypeptide of the invention antibodies) that are associated with heterologous polypeptides or nucleic acids. In one example, the invention provides a method for delivering a therapeutic protein into the targeted cell. In another example, the invention provides a method for delivering a single stranded nucleic acid (e.g., antisense or ribozymes) or double stranded nucleic acid (e.g., DNA that can integrate into the cell's genome or replicate episomally and that can be transcribed) into the targeted cell.

[00101] In another embodiment, the invention provides a method for the specific destruction of cells (e.g., the destruction of tumor cells) by administering polypeptides of the invention (e.g., polypeptides of the invention or anti-polypeptides of the invention antibodies) in association with toxins or cytotoxic prodrugs.

[00102] By "toxin" is meant compounds that bind and activate endogenous cytotoxic effector systems, radioisotopes, holotoxins, modified toxins, catalytic subunits of toxins, cytotoxins (cytotoxic agents), or any molecules or enzymes not normally present in or on the surface of a cell that under defined conditions cause the cell's death. Toxins that may be used

according to the methods of the invention include, but are not limited to, radioisotopes known in the art, compounds such as, for example, antibodies (or complement fixing containing portions thereof) that bind an inherent or induced endogenous cytotoxic effector system, thymidine kinase, endonuclease, RNase, alpha toxin, ricin, abrin, *Pseudomonas* exotoxin A, diphtheria toxin, saporin, momordin, gelonin, pokeweed antiviral protein, alpha-sarcin and cholera toxin. "Toxin" also includes a cytostatic or cytotoxic agent, a therapeutic agent or a radioactive metal ion, e.g., alpha-emitters such as, for example,  $^{213}\text{Bi}$ , or other radioisotopes such as, for example,  $^{103}\text{Pd}$ ,  $^{133}\text{Xe}$ ,  $^{131}\text{I}$ ,  $^{68}\text{Ge}$ ,  $^{57}\text{Co}$ ,  $^{65}\text{Zn}$ ,  $^{85}\text{Sr}$ ,  $^{32}\text{P}$ ,  $^{35}\text{S}$ ,  $^{90}\text{Y}$ ,  $^{153}\text{Sm}$ ,  $^{153}\text{Gd}$ ,  $^{169}\text{Yb}$ ,  $^{51}\text{Cr}$ ,  $^{54}\text{Mn}$ ,  $^{75}\text{Se}$ ,  $^{113}\text{Sn}$ ,  $^{90}\text{Yttrium}$ ,  $^{117}\text{Tin}$ ,  $^{186}\text{Rhenium}$ ,  $^{166}\text{Holmium}$ , and  $^{188}\text{Rhenium}$ ; luminescent labels, such as luminol; and fluorescent labels, such as fluorescein and rhodamine, and biotin.

[00103] Techniques known in the art may be applied to label antibodies of the invention. Such techniques include, but are not limited to, the use of bifunctional conjugating agents (see e.g., U.S. Patent Nos. 5,756,065; 5,714,631; 5,696,239; 5,652,361; 5,505,931; 5,489,425; 5,435,990; 5,428,139; 5,342,604; 5,274,119; 4,994,560; and 5,808,003; the contents of each of which are hereby incorporated by reference in its entirety). A cytotoxin or cytotoxic agent includes any agent that is detrimental to cells. Examples include paclitaxol, cytochalasin B, gramicidin D, ethidium bromide, emetine, mitomycin, etoposide, teniposide, vincristine, vinblastine, colchicin, doxorubicin, daunorubicin, dihydroxy anthracin dione, mitoxantrone, mithramycin, actinomycin D, 1-dehydrotestosterone, glucocorticoids, procaine, tetracaine, lidocaine, propranolol, and puromycin and analogs or homologs thereof. Therapeutic agents include, but are not limited to, antimetabolites (e.g., methotrexate, 6-mercaptopurine, 6-thioguanine, cytarabine, 5-fluorouracil decarbazine), alkylating agents (e.g., mechlorethamine, thioepa chlorambucil, melphalan, carmustine (BSNU) and lomustine (CCNU), cyclophosphamide, busulfan, dibromomannitol, streptozotocin, mitomycin C, and cis- dichlorodiamine platinum (II) (DDP) cisplatin), anthracyclines (e.g., daunorubicin (formerly daunomycin) and doxorubicin), antibiotics (e.g., dactinomycin (formerly actinomycin), bleomycin, mithramycin, and anthramycin (AMC)), and anti-mitotic agents (e.g., vincristine and vinblastine).

[00104] By "cytotoxic prodrug" is meant a non-toxic compound that is converted by an enzyme, normally present in the cell, into a cytotoxic compound. Cytotoxic prodrugs that may be used according to the methods of the invention include, but are not limited to,

glutamyl derivatives of benzoic acid mustard alkylating agent, phosphate derivatives of etoposide or mitomycin C, cytosine arabinoside, daunorubisin, and phenoxyacetamide derivatives of doxorubicin.

[00105] It will be appreciated that conditions caused by a decrease in the standard or normal level of a polypeptide of the invention activity in an individual, particularly disorders of the immune system, can be treated by administration of polypeptides of the invention (e.g., in the form of soluble extracellular domain or cells expressing the complete protein) or agonist. Thus, the invention also provides a method of treatment of an individual in need of an increased level of polypeptide of the invention activity comprising administering to such an individual a pharmaceutical composition comprising an amount of an isolated polypeptides of the invention, or agonist thereof (e.g., an agonistic polypeptide of the invention antibody), effective to increase the polypeptide activity level in such an individual.

[00106] It will also be appreciated that conditions caused by a increase in the standard or normal level of polypeptide activity in an individual, particularly disorders of the immune system, can be treated by administration of polypeptides of the invention (e.g., in the form of soluble extracellular domain or cells expressing the complete protein) or antagonist (e.g., an antagonistic polypeptide antibody). Thus, the invention also provides a method of treatment of an individual in need of an decreased level of polypeptide activity comprising administering to such an individual a pharmaceutical composition comprising an amount of an isolated polypeptide, or antagonist thereof, effective to decrease the polypeptide activity level in such an individual.

[00107] In certain embodiments, a polypeptide of the invention, or polynucleotides, antibodies, agonists, or antagonists corresponding to that polypeptide, may be used to diagnose and/or prognose diseases and/or disorders associated with the tissue(s) in which the polypeptide of the invention is expressed, including one, two, three, four, five, or more tissues disclosed in Table 1, column 8 (Tissue Distribution Library Code).

[00108] Thus, polynucleotides, translation products and antibodies of the invention are useful in the diagnosis, prognosis, prevention, and/or treatment of diseases and/or disorders associated with activities that include, but are not limited to, blood coagulation, fibrinolysis, complement activation, extracellular matrix turnover, cell migration and prohormone activation.

[00109] More generally, polynucleotides, translation products and antibodies corresponding to this gene may be useful for the diagnosis, prognosis, prevention, and/or treatment of diseases and/or disorders associated with the following systems.

#### Immune Activity

[0439] Polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in treating, preventing, diagnosing and/or prognosing diseases, disorders, and/or conditions of the immune system, by, for example, activating or inhibiting the proliferation, differentiation, or mobilization (chemotaxis) of immune cells. Immune cells develop through a process called hematopoiesis, producing myeloid (platelets, red blood cells, neutrophils, and macrophages) and lymphoid (B and T lymphocytes) cells from pluripotent stem cells. The etiology of these immune diseases, disorders, and/or conditions may be genetic, somatic, such as cancer and some autoimmune diseases, acquired (e.g., by chemotherapy or toxins), or infectious. Moreover, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention can be used as a marker or detector of a particular immune system disease or disorder.

[0440] In another embodiment, a polypeptide of the invention, or polynucleotides, antibodies, agonists, or antagonists corresponding to that polypeptide, may be used to treat diseases and disorders of the immune system and/or to inhibit or enhance an immune response generated by cells associated with the tissue(s) in which the polypeptide of the invention is expressed, including one, two, three, four, five, or more tissues disclosed in Table 1, column 8 (Tissue Distribution Library Code).

[0441] Polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in treating, preventing, diagnosing, and/or prognosing immunodeficiencies, including both congenital and acquired immunodeficiencies. Examples of B cell immunodeficiencies in which immunoglobulin levels B cell function and/or B cell numbers are decreased include: X-linked agammaglobulinemia (Bruton's disease), X-linked infantile agammaglobulinemia, X-linked immunodeficiency with hyper IgM, non X-linked immunodeficiency with hyper IgM, X-linked lymphoproliferative syndrome (XLP),

agammaglobulinemia including congenital and acquired agammaglobulinemia, adult onset agammaglobulinemia, late-onset agammaglobulinemia, dysgammaglobulinemia, hypogammaglobulinemia, unspecified hypogammaglobulinemia, recessive agammaglobulinemia (Swiss type), Selective IgM deficiency, selective IgA deficiency, selective IgG subclass deficiencies, IgG subclass deficiency (with or without IgA deficiency), Ig deficiency with increased IgM, IgG and IgA deficiency with increased IgM, antibody deficiency with normal or elevated Igs, Ig heavy chain deletions, kappa chain deficiency, B cell lymphoproliferative disorder (BLPD), common variable immunodeficiency (CVID), common variable immunodeficiency (CVI) (acquired), and transient hypogammaglobulinemia of infancy.

[0442] In specific embodiments, ataxia-telangiectasia or conditions associated with ataxia-telangiectasia are treated, prevented, diagnosed, and/or prognosing using the polypeptides or polynucleotides of the invention, and/or agonists or antagonists thereof.

[0443] Examples of congenital immunodeficiencies in which T cell and/or B cell function and/or number is decreased include, but are not limited to: DiGeorge anomaly, severe combined immunodeficiencies (SCID) (including, but not limited to, X-linked SCID, autosomal recessive SCID, adenosine deaminase deficiency, purine nucleoside phosphorylase (PNP) deficiency, Class II MHC deficiency (Bare lymphocyte syndrome), Wiskott-Aldrich syndrome, and ataxia telangiectasia), thymic hypoplasia, third and fourth pharyngeal pouch syndrome, 22q11.2 deletion, chronic mucocutaneous candidiasis, natural killer cell deficiency (NK), idiopathic CD4<sup>+</sup> T-lymphocytopenia, immunodeficiency with predominant T cell defect (unspecified), and unspecified immunodeficiency of cell mediated immunity.

[0444] In specific embodiments, DiGeorge anomaly or conditions associated with DiGeorge anomaly are treated, prevented, diagnosed, and/or prognosed using polypeptides or polynucleotides of the invention, or antagonists or agonists thereof.

[0445] Other immunodeficiencies that may be treated, prevented, diagnosed, and/or prognosed using polypeptides or polynucleotides of the invention, and/or agonists or antagonists thereof, include, but are not limited to, chronic granulomatous disease, Chédiak-Higashi syndrome, myeloperoxidase deficiency, leukocyte glucose-6-phosphate



dehydrogenase deficiency, X-linked lymphoproliferative syndrome (XLP), leukocyte adhesion deficiency, complement component deficiencies (including C1, C2, C3, C4, C5, C6, C7, C8 and/or C9 deficiencies), reticular dysgenesis, thymic aplasia, immunodeficiency with thymoma, severe congenital leukopenia, dysplasia with immunodeficiency, neonatal neutropenia, short limbed dwarfism, and Nezelof syndrome-combined immunodeficiency with Igs.

[0446] In a preferred embodiment, the immunodeficiencies and/or conditions associated with the immunodeficiencies recited above are treated, prevented, diagnosed and/or prognosed using polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention.

[0447] In a preferred embodiment polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention could be used as an agent to boost immunoresponsiveness among immunodeficient individuals. In specific embodiments, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention could be used as an agent to boost immunoresponsiveness among B cell and/or T cell immunodeficient individuals.

[0448] The polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in treating, preventing, diagnosing and/or prognosing autoimmune disorders. Many autoimmune disorders result from inappropriate recognition of self as foreign material by immune cells. This inappropriate recognition results in an immune response leading to the destruction of the host tissue. Therefore, the administration of polynucleotides and polypeptides of the invention that can inhibit an immune response, particularly the proliferation, differentiation, or chemotaxis of T-cells, may be an effective therapy in preventing autoimmune disorders.

[0449] Autoimmune diseases or disorders that may be treated, prevented, diagnosed and/or prognosed by polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention include, but are not limited to, one or more of the following: systemic lupus erythematosus, rheumatoid arthritis, ankylosing spondylitis, multiple sclerosis, autoimmune thyroiditis, Hashimoto's thyroiditis, autoimmune hemolytic anemia,

hemolytic anemia, thrombocytopenia, autoimmune thrombocytopenia purpura, autoimmune neonatal thrombocytopenia, idiopathic thrombocytopenia purpura, purpura (e.g., Henloch-Scoenlein purpura), autoimmunocytopenia, Goodpasture's syndrome, Pemphigus vulgaris, myasthenia gravis, Grave's disease (hyperthyroidism), and insulin-resistant diabetes mellitus.

[0450] Additional disorders that are likely to have an autoimmune component that may be treated, prevented, and/or diagnosed with the compositions of the invention include, but are not limited to, type II collagen-induced arthritis, antiphospholipid syndrome, dermatitis, allergic encephalomyelitis, myocarditis, relapsing polychondritis, rheumatic heart disease, neuritis, uveitis ophthalmia, polyendocrinopathies, Reiter's Disease, Stiff-Man Syndrome, autoimmune pulmonary inflammation, autism, Guillain-Barre Syndrome, insulin dependent diabetes mellitus, and autoimmune inflammatory eye disorders.

[0451] Additional disorders that are likely to have an autoimmune component that may be treated, prevented, diagnosed and/or prognosed with the compositions of the invention include, but are not limited to, scleroderma with anti-collagen antibodies (often characterized, e.g., by nucleolar and other nuclear antibodies), mixed connective tissue disease (often characterized, e.g., by antibodies to extractable nuclear antigens (e.g., ribonucleoprotein)), polymyositis (often characterized, e.g., by nonhistone ANA), pernicious anemia (often characterized, e.g., by antiparietal cell, microsomes, and intrinsic factor antibodies), idiopathic Addison's disease (often characterized, e.g., by humoral and cell-mediated adrenal cytotoxicity, infertility (often characterized, e.g., by antispermatozoal antibodies), glomerulonephritis (often characterized, e.g., by glomerular basement membrane antibodies or immune complexes), bullous pemphigoid (often characterized, e.g., by IgG and complement in basement membrane), Sjogren's syndrome (often characterized, e.g., by multiple tissue antibodies, and/or a specific nonhistone ANA (SS-B)), diabetes mellitus (often characterized, e.g., by cell-mediated and humoral islet cell antibodies), and adrenergic drug resistance (including adrenergic drug resistance with asthma or cystic fibrosis) (often characterized, e.g., by beta-adrenergic receptor antibodies).

[0452] Additional disorders that may have an autoimmune component that may be treated, prevented, diagnosed and/or prognosed with the compositions of the invention include, but

are not limited to, chronic active hepatitis (often characterized, e.g., by smooth muscle antibodies), primary biliary cirrhosis (often characterized, e.g., by mitochondria antibodies), other endocrine gland failure (often characterized, e.g., by specific tissue antibodies in some cases), vitiligo (often characterized, e.g., by melanocyte antibodies), vasculitis (often characterized, e.g., by Ig and complement in vessel walls and/or low serum complement), post-MI (often characterized, e.g., by myocardial antibodies), cardiomy syndrome (often characterized, e.g., by myocardial antibodies), urticaria (often characterized, e.g., by IgG and IgM antibodies to IgE), atopic dermatitis (often characterized, e.g., by IgG and IgM antibodies to IgE), asthma (often characterized, e.g., by IgG and IgM antibodies to IgE), and many other inflammatory, granulomatous, degenerative, and atrophic disorders.

[0453] In a preferred embodiment, the autoimmune diseases and disorders and/or conditions associated with the diseases and disorders recited above are treated, prevented, diagnosed and/or prognosed using for example, antagonists or agonists, polypeptides or polynucleotides, or antibodies of the present invention. In a specific preferred embodiment, rheumatoid arthritis is treated, prevented, and/or diagnosed using polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention.

[0454] In another specific preferred embodiment, systemic lupus erythematosus is treated, prevented, and/or diagnosed using polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention. In another specific preferred embodiment, idiopathic thrombocytopenia purpura is treated, prevented, and/or diagnosed using polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention.

[0455] In another specific preferred embodiment IgA nephropathy is treated, prevented, and/or diagnosed using polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention.

[0456] In a preferred embodiment, the autoimmune diseases and disorders and/or conditions associated with the diseases and disorders recited above are treated, prevented, diagnosed and/or prognosed using polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention

[0457] In preferred embodiments, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a immunosuppressive agent(s).

[0458] Polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in treating, preventing, prognosing, and/or diagnosing diseases, disorders, and/or conditions of hematopoietic cells. Polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention could be used to increase differentiation and proliferation of hematopoietic cells, including the pluripotent stem cells, in an effort to treat or prevent those diseases, disorders, and/or conditions associated with a decrease in certain (or many) types hematopoietic cells, including but not limited to, leukopenia, neutropenia, anemia, and thrombocytopenia. Alternatively, Polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention could be used to increase differentiation and proliferation of hematopoietic cells, including the pluripotent stem cells, in an effort to treat or prevent those diseases, disorders, and/or conditions associated with an increase in certain (or many) types of hematopoietic cells, including but not limited to, histiocytosis.

[0459] Allergic reactions and conditions, such as asthma (particularly allergic asthma) or other respiratory problems, may also be treated, prevented, diagnosed and/or prognosed using polypeptides, antibodies, or polynucleotides of the invention, and/or agonists or antagonists thereof. Moreover, these molecules can be used to treat, prevent, prognose, and/or diagnose anaphylaxis, hypersensitivity to an antigenic molecule, or blood group incompatibility.

[0460] Additionally, polypeptides or polynucleotides of the invention, and/or agonists or antagonists thereof, may be used to treat, prevent, diagnose and/or prognose IgE-mediated allergic reactions. Such allergic reactions include, but are not limited to, asthma, rhinitis, and eczema. In specific embodiments, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be used to modulate IgE concentrations in vitro or in vivo.

[0461] Moreover, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention have uses in the diagnosis, prognosis, prevention, and/or treatment of inflammatory conditions. For example, since polypeptides, antibodies, or

polynucleotides of the invention, and/or agonists or antagonists of the invention may inhibit the activation, proliferation and/or differentiation of cells involved in an inflammatory response, these molecules can be used to prevent and/or treat chronic and acute inflammatory conditions. Such inflammatory conditions include, but are not limited to, for example, inflammation associated with infection (e.g., septic shock, sepsis, or systemic inflammatory response syndrome), ischemia-reperfusion injury, endotoxin lethality, complement-mediated hyperacute rejection, nephritis, cytokine or chemokine induced lung injury, inflammatory bowel disease, Crohn's disease, over production of cytokines (e.g., TNF or IL-1.), respiratory disorders (e.g., asthma and allergy); gastrointestinal disorders (e.g., inflammatory bowel disease); cancers (e.g., gastric, ovarian, lung, bladder, liver, and breast); CNS disorders (e.g., multiple sclerosis; ischemic brain injury and/or stroke, traumatic brain injury, neurodegenerative disorders (e.g., Parkinson's disease and Alzheimer's disease); AIDS-related dementia; and prion disease); cardiovascular disorders (e.g., atherosclerosis, myocarditis, cardiovascular disease, and cardiopulmonary bypass complications); as well as many additional diseases, conditions, and disorders that are characterized by inflammation (e.g., hepatitis, rheumatoid arthritis, gout, trauma, pancreatitis, sarcoidosis, dermatitis, renal ischemia-reperfusion injury, Grave's disease, systemic lupus erythematosus, diabetes mellitus, and allogenic transplant rejection).

[0462] Because inflammation is a fundamental defense mechanism, inflammatory disorders can effect virtually any tissue of the body. Accordingly, polynucleotides, polypeptides, and antibodies of the invention, as well as agonists or antagonists thereof, have uses in the treatment of tissue-specific inflammatory disorders, including, but not limited to, adrenalitis, alveolitis, angiocholecystitis, appendicitis, balanitis, blepharitis, bronchitis, bursitis, carditis, cellulitis, cervicitis, cholecystitis, chondritis, cochitis, colitis, conjunctivitis, cystitis, dermatitis, diverticulitis, encephalitis, endocarditis, esophagitis, eustachitis, fibrositis, folliculitis, gastritis, gastroenteritis, gingivitis, glossitis, hepatosplenitis, keratitis, labyrinthitis, laryngitis, lymphangitis, mastitis, media otitis, meningitis, metritis, mucitis, myocarditis, myositis, myringitis, nephritis, neuritis, orchitis, osteochondritis, otitis, pericarditis, peritendonitis, peritonitis, pharyngitis, phlebitis, poliomyelitis, prostatitis,

pulpitis, retinitis, rhinitis, salpingitis, scleritis, sclerochoroiditis, scrotitis, sinusitis, spondylitis, steatitis, stomatitis, synovitis, syringitis, tendonitis, tonsillitis, urethritis, and vaginitis.

[0463] In specific embodiments, polypeptides, antibodies, or polynucleotides of the invention, and/or agonists or antagonists thereof, are useful to diagnose, prognose, prevent, and/or treat organ transplant rejections and graft-versus-host disease. Organ rejection occurs by host immune cell destruction of the transplanted tissue through an immune response. Similarly, an immune response is also involved in GVHD, but, in this case, the foreign transplanted immune cells destroy the host tissues. Polypeptides, antibodies, or polynucleotides of the invention, and/or agonists or antagonists thereof, that inhibit an immune response, particularly the activation, proliferation, differentiation, or chemotaxis of T-cells, may be an effective therapy in preventing organ rejection or GVHD. In specific embodiments, polypeptides, antibodies, or polynucleotides of the invention, and/or agonists or antagonists thereof, that inhibit an immune response, particularly the activation, proliferation, differentiation, or chemotaxis of T-cells, may be an effective therapy in preventing experimental allergic and hyperacute xenograft rejection.

[0464] In other embodiments, polypeptides, antibodies, or polynucleotides of the invention, and/or agonists or antagonists thereof, are useful to diagnose, prognose, prevent, and/or treat immune complex diseases, including, but not limited to, serum sickness, post streptococcal glomerulonephritis, polyarteritis nodosa, and immune complex-induced vasculitis.

[0465] Polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the invention can be used to treat, detect, and/or prevent infectious agents. For example, by increasing the immune response, particularly increasing the proliferation activation and/or differentiation of B and/or T cells, infectious diseases may be treated, detected, and/or prevented. The immune response may be increased by either enhancing an existing immune response, or by initiating a new immune response. Alternatively, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may also

directly inhibit the infectious agent (refer to section of application listing infectious agents, etc), without necessarily eliciting an immune response.

[0466] In another embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a vaccine adjuvant that enhances immune responsiveness to an antigen. In a specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an adjuvant to enhance tumor-specific immune responses.

[0467] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an adjuvant to enhance anti-viral immune responses. Anti-viral immune responses that may be enhanced using the compositions of the invention as an adjuvant, include virus and virus associated diseases or symptoms described herein or otherwise known in the art. In specific embodiments, the compositions of the invention are used as an adjuvant to enhance an immune response to a virus, disease, or symptom selected from the group consisting of: AIDS, meningitis, Dengue, EBV, and hepatitis (e.g., hepatitis B). In another specific embodiment, the compositions of the invention are used as an adjuvant to enhance an immune response to a virus, disease, or symptom selected from the group consisting of: HIV/AIDS, respiratory syncytial virus, Dengue, rotavirus, Japanese B encephalitis, influenza A and B, parainfluenza, measles, cytomegalovirus, rabies, Junin, Chikungunya, Rift Valley Fever, herpes simplex, and yellow fever.

[0468] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an adjuvant to enhance anti-bacterial or anti-fungal immune responses. Anti-bacterial or anti-fungal immune responses that may be enhanced using the compositions of the invention as an adjuvant, include bacteria or fungus and bacteria or fungus associated diseases or symptoms described herein or otherwise known in the art. In specific embodiments, the compositions of the invention are used as an adjuvant to enhance an immune response to a bacteria or fungus, disease, or symptom selected from the group consisting of: tetanus, Diphtheria, botulism, and meningitis type B.

[0469] In another specific embodiment, the compositions of the invention are used as an adjuvant to enhance an immune response to a bacteria or fungus, disease, or symptom selected from the group consisting of: *Vibrio cholerae*, *Mycobacterium leprae*, *Salmonella typhi*, *Salmonella paratyphi*, *Meisseria meningitidis*, *Streptococcus pneumoniae*, Group B streptococcus, *Shigella spp.*, Enterotoxigenic *Escherichia coli*, Enterohemorrhagic *E. coli*, and *Borrelia burgdorferi*.

[0470] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an adjuvant to enhance anti-parasitic immune responses. Anti-parasitic immune responses that may be enhanced using the compositions of the invention as an adjuvant, include parasite and parasite associated diseases or symptoms described herein or otherwise known in the art. In specific embodiments, the compositions of the invention are used as an adjuvant to enhance an immune response to a parasite. In another specific embodiment, the compositions of the invention are used as an adjuvant to enhance an immune response to Plasmodium (malaria) or Leishmania.

[0471] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention may also be employed to treat infectious diseases including silicosis, sarcoidosis, and idiopathic pulmonary fibrosis; for example, by preventing the recruitment and activation of mononuclear phagocytes.

[0472] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an antigen for the generation of antibodies to inhibit or enhance immune mediated responses against polypeptides of the invention.

[0473] In one embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are administered to an animal (e.g., mouse, rat, rabbit, hamster, guinea pig, pigs, micro-pig, chicken, camel, goat, horse, cow, sheep, dog, cat, non-human primate, and human, most preferably human) to boost the immune system to produce increased quantities of one or more antibodies (e.g., IgG, IgA, IgM, and IgE), to induce



higher affinity antibody production and immunoglobulin class switching (e.g., IgG, IgA, IgM, and IgE), and/or to increase an immune response.

[0474] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a stimulator of B cell responsiveness to pathogens.

[0475] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an activator of T cells.

[0476] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an agent that elevates the immune status of an individual prior to their receipt of immunosuppressive therapies.

[0477] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an agent to induce higher affinity antibodies.

[0478] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an agent to increase serum immunoglobulin concentrations.

[0479] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an agent to accelerate recovery of immunocompromised individuals.

[0480] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an agent to boost immunoresponsiveness among aged populations and/or neonates.

[0481] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an immune system enhancer prior to, during, or after bone marrow transplant and/or other transplants (e.g., allogeneic or xenogeneic organ transplantation). With respect to transplantation, compositions of the invention may be administered prior to, concomitant with, and/or after transplantation. In a specific embodiment, compositions of the invention are administered after transplantation, prior to the beginning of recovery of T-cell populations. In another specific embodiment,

compositions of the invention are first administered after transplantation after the beginning of recovery of T cell populations, but prior to full recovery of B cell populations.

[0482] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an agent to boost immunoresponsiveness among individuals having an acquired loss of B cell function. Conditions resulting in an acquired loss of B cell function that may be ameliorated or treated by administering the polypeptides, antibodies, polynucleotides and/or agonists or antagonists thereof, include, but are not limited to, HIV Infection, AIDS, bone marrow transplant, and B cell chronic lymphocytic leukemia (CLL).

[0483] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an agent to boost immunoresponsiveness among individuals having a temporary immune deficiency. Conditions resulting in a temporary immune deficiency that may be ameliorated or treated by administering the polypeptides, antibodies, polynucleotides and/or agonists or antagonists thereof, include, but are not limited to, recovery from viral infections (e.g., influenza), conditions associated with malnutrition, recovery from infectious mononucleosis, or conditions associated with stress, recovery from measles, recovery from blood transfusion, and recovery from surgery.

[0484] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a regulator of antigen presentation by monocytes, dendritic cells, and/or B-cells. In one embodiment, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention enhance antigen presentation or antagonizes antigen presentation in vitro or in vivo. Moreover, in related embodiments, said enhancement or antagonism of antigen presentation may be useful as an anti-tumor treatment or to modulate the immune system.

[0485] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as an agent to direct an individual's immune system towards development of a humoral response (i.e. TH2) as opposed to a TH1 cellular response.

[0486] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a means to induce tumor proliferation and thus make it more susceptible to anti-neoplastic agents. For example, multiple myeloma is a slowly dividing disease and is thus refractory to virtually all anti-neoplastic regimens. If these cells were forced to proliferate more rapidly their susceptibility profile would likely change.

[0487] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a stimulator of B cell production in pathologies such as AIDS, chronic lymphocyte disorder and/or Common Variable Immunodeficiency.

[0488] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a therapy for generation and/or regeneration of lymphoid tissues following surgery, trauma or genetic defect. In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used in the pretreatment of bone marrow samples prior to transplant.

[0489] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a gene-based therapy for genetically inherited disorders resulting in immuno-incompetence/immunodeficiency such as observed among SCID patients.

[0490] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a means of activating monocytes/macrophages to defend against parasitic diseases that effect monocytes such as Leishmania.

[0491] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a means of regulating secreted cytokines that are elicited by polypeptides of the invention.

[0492] In another embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used in one or more of the applications described herein, as they may apply to veterinary medicine.

[0493] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a means of blocking various aspects of immune responses to foreign agents or self. Examples of diseases or conditions in which blocking of certain aspects of immune responses may be desired include autoimmune disorders such as lupus, and arthritis, as well as immunoresponsiveness to skin allergies, inflammation, bowel disease, injury and diseases/disorders associated with pathogens.

[0494] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a therapy for preventing the B cell proliferation and Ig secretion associated with autoimmune diseases such as idiopathic thrombocytopenic purpura, systemic lupus erythematosus and multiple sclerosis.

[0495] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a inhibitor of B and/or T cell migration in endothelial cells. This activity disrupts tissue architecture or cognate responses and is useful, for example in disrupting immune responses, and blocking sepsis.

[0496] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a therapy for chronic hypergammaglobulinemia evident in such diseases as monoclonal gammopathy of undetermined significance (MGUS), Waldenstrom's disease, related idiopathic monoclonal gammopathies, and plasmacytomas.

[0497] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention may be employed for instance to inhibit polypeptide chemotaxis and activation of macrophages and their precursors, and of neutrophils, basophils, B lymphocytes and some T-cell subsets, e.g., activated and CD8 cytotoxic T cells and natural killer cells, in certain autoimmune and chronic inflammatory and infective diseases. Examples of autoimmune diseases are described herein and include multiple sclerosis, and insulin-dependent diabetes.

[0498] The polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention may also be employed to treat idiopathic hyper-eosinophilic syndrome by, for example, preventing eosinophil production and migration.

[0499] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used to enhance or inhibit complement mediated cell lysis.

[0500] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used to enhance or inhibit antibody dependent cellular cytotoxicity.

[0501] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention may also be employed for treating atherosclerosis, for example, by preventing monocyte infiltration in the artery wall.

[0502] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention may be employed to treat adult respiratory distress syndrome (ARDS).

[0503] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention may be useful for stimulating wound and tissue repair, stimulating angiogenesis, and/or stimulating the repair of vascular or lymphatic diseases or disorders. Additionally, agonists and antagonists of the invention may be used to stimulate the regeneration of mucosal surfaces.

[0504] In a specific embodiment, polynucleotides or polypeptides, and/or agonists thereof are used to diagnose, prognose, treat, and/or prevent a disorder characterized by primary or acquired immunodeficiency, deficient serum immunoglobulin production, recurrent infections, and/or immune system dysfunction. Moreover, polynucleotides or polypeptides, and/or agonists thereof may be used to treat or prevent infections of the joints, bones, skin, and/or parotid glands, blood-borne infections (e.g., sepsis, meningitis, septic arthritis, and/or osteomyelitis), autoimmune diseases (e.g., those disclosed herein), inflammatory disorders, and malignancies, and/or any disease or disorder or condition associated with these infections, diseases, disorders and/or malignancies) including, but not limited to, CVID,

other primary immune deficiencies, HIV disease, CLL, recurrent bronchitis, sinusitis, otitis media, conjunctivitis, pneumonia, hepatitis, meningitis, herpes zoster (e.g., severe herpes zoster), and/or pneumocystis carinii. Other diseases and disorders that may be prevented, diagnosed, prognosed, and/or treated with polynucleotides or polypeptides, and/or agonists of the present invention include, but are not limited to, HIV infection, HTLV-BLV infection, lymphopenia, phagocyte bactericidal dysfunction anemia, thrombocytopenia, and hemoglobinuria.

[0505] In another embodiment, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention are used to treat, and/or diagnose an individual having common variable immunodeficiency disease ("CVID"; also known as "acquired agammaglobulinemia" and "acquired hypogammaglobulinemia") or a subset of this disease.

[0506] In a specific embodiment, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be used to diagnose, prognose, prevent, and/or treat cancers or neoplasms including immune cell or immune tissue-related cancers or neoplasms. Examples of cancers or neoplasms that may be prevented, diagnosed, or treated by polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention include, but are not limited to, acute myelogenous leukemia, chronic myelogenous leukemia, Hodgkin's disease, non-Hodgkin's lymphoma, acute lymphocytic leukemia (ALL), Chronic lymphocytic leukemia, plasmacytomas, multiple myeloma, Burkitt's lymphoma, EBV-transformed diseases, and/or diseases and disorders described in the section entitled "Hyperproliferative Disorders" elsewhere herein.

[0507] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a therapy for decreasing cellular proliferation of Large B-cell Lymphomas.

[0508] In another specific embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are used as a means of decreasing the involvement of B cells and Ig associated with Chronic Myelogenous Leukemia.

[0509] In specific embodiments, the compositions of the invention are used as an agent to boost immunoresponsiveness among B cell immunodeficient individuals, such as, for example, an individual who has undergone a partial or complete splenectomy.

[0510] Antagonists of the invention include, for example, binding and/or inhibitory antibodies, antisense nucleic acids, ribozymes or soluble forms of the polypeptides of the present invention (e.g., Fc fusion protein; see, e.g., Example 9). Agonists of the invention include, for example, binding or stimulatory antibodies, and soluble forms of the polypeptides (e.g., Fc fusion proteins; see, e.g., Example 9). polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention may be employed in a composition with a pharmaceutically acceptable carrier, e.g., as described herein.

[0511] In another embodiment, polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention are administered to an animal (including, but not limited to, those listed above, and also including transgenic animals) incapable of producing functional endogenous antibody molecules or having an otherwise compromised endogenous immune system, but which is capable of producing human immunoglobulin molecules by means of a reconstituted or partially reconstituted immune system from another animal (see, e.g., published PCT Application Nos. WO98/24893, WO/9634096, WO/9633735, and WO/9110741). Administration of polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention to such animals is useful for the generation of monoclonal antibodies against the polypeptides, antibodies, polynucleotides and/or agonists or antagonists of the present invention.

#### Blood-Related Disorders

[0512] The polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be used to modulate hemostatic (the stopping of bleeding) or thrombolytic (clot dissolving) activity. For example, by increasing hemostatic or thrombolytic activity, polynucleotides or polypeptides, and/or agonists or antagonists of the present invention could be used to treat or prevent blood coagulation diseases, disorders, and/or conditions (e.g., afibrinogenemia, factor deficiencies, hemophilia), blood platelet diseases, disorders, and/or conditions (e.g., thrombocytopenia), or wounds resulting from

trauma, surgery, or other causes. Alternatively, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention that can decrease hemostatic or thrombolytic activity could be used to inhibit or dissolve clotting. These molecules could be important in the treatment or prevention of heart attacks (infarction), strokes, or scarring.

[0513] In specific embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be used to prevent, diagnose, prognose, and/or treat thrombosis, arterial thrombosis, venous thrombosis, thromboembolism, pulmonary embolism, atherosclerosis, myocardial infarction, transient ischemic attack, unstable angina. In specific embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be used for the prevention of occlusion of saphenous grafts, for reducing the risk of periprocedural thrombosis as might accompany angioplasty procedures, for reducing the risk of stroke in patients with atrial fibrillation including nonrheumatic atrial fibrillation, for reducing the risk of embolism associated with mechanical heart valves and or mitral valves disease. Other uses for the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention, include, but are not limited to, the prevention of occlusions in extracorporeal devices (e.g., intravascular canulas, vascular access shunts in hemodialysis patients, hemodialysis machines, and cardiopulmonary bypass machines).

[0514] In another embodiment, a polypeptide of the invention, or polynucleotides, antibodies, agonists, or antagonists corresponding to that polypeptide, may be used to prevent, diagnose, prognose, and/or treat diseases and disorders of the blood and/or blood forming organs associated with the tissue(s) in which the polypeptide of the invention is expressed, including one, two, three, four, five, or more tissues disclosed in Table 1, column 8 (Tissue Distribution Library Code).

[0515] The polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be used to modulate hematopoietic activity (the formation of blood cells). For example, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be used to increase the quantity of all or subsets of blood cells, such as, for example, erythrocytes, lymphocytes (B or T cells), myeloid cells (e.g., basophils, eosinophils, neutrophils, mast cells, macrophages) and platelets. The ability to decrease the quantity of blood cells or subsets of blood cells may be useful in the prevention, detection, diagnosis and/or treatment of anemias and leukopenias described



below. Alternatively, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be used to decrease the quantity of all or subsets of blood cells, such as, for example, erythrocytes, lymphocytes (B or T cells), myeloid cells (e.g., basophils, eosinophils, neutrophils, mast cells, macrophages) and platelets.. The ability to decrease the quantity of blood cells or subsets of blood cells may be useful in the prevention, detection, diagnosis and/or treatment of leukocytoses, such as, for example eosinophilia.

[0516] The polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be used to prevent, treat, or diagnose blood dyscrasia.

[0517] Anemias are conditions in which the number of red blood cells or amount of hemoglobin (the protein that carries oxygen) in them is below normal. Anemia may be caused by excessive bleeding, decreased red blood cell production, or increased red blood cell destruction (hemolysis). The polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in treating, preventing, and/or diagnosing anemias. Anemias that may be treated prevented or diagnosed by the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention include iron deficiency anemia, hypochromic anemia, microcytic anemia, chlorosis, hereditary sideroblastic anemia, idiopathic acquired sideroblastic anemia, red cell aplasia, megaloblastic anemia (e.g., pernicious anemia, (vitamin B12 deficiency) and folic acid deficiency anemia), aplastic anemia, hemolytic anemias (e.g., autoimmune hemolytic anemia, microangiopathic hemolytic anemia, and paroxysmal nocturnal hemoglobinuria). The polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in treating, preventing, and/or diagnosing anemias associated with diseases including but not limited to, anemias associated with systemic lupus erythematosus, cancers, lymphomas, chronic renal disease, and enlarged spleens. The polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in treating, preventing, and/or diagnosing anemias arising from drug treatments such as anemias associated with methyl dopa, dapsone, and/or sulfadiazine. Additionally, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in treating, preventing, and/or diagnosing anemias associated with abnormal red blood cell architecture including but not limited to, hereditary spherocytosis,

hereditary elliptocytosis, glucose-6-phosphate dehydrogenase deficiency, and sickle cell anemia.

[0518] The polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in treating, preventing, and/or diagnosing hemoglobin abnormalities, (e.g., those associated with sickle cell anemia, hemoglobin C disease, hemoglobin S-C disease, and hemoglobin E disease). Additionally, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating thalassemias, including, but not limited to major and minor forms of alpha-thalassemia and beta-thalassemia.

[0519] In another embodiment, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating bleeding disorders including, but not limited to, thrombocytopenia (e.g., idiopathic thrombocytopenic purpura, and thrombotic thrombocytopenic purpura), Von Willebrand's disease, hereditary platelet disorders (e.g., storage pool disease such as Chediak-Higashi and Hermansky-Pudlak syndromes, thromboxane A2 dysfunction, thromboasthenia, and Bernard-Soulier syndrome), hemolytic-uremic syndrome, hemophelias such as hemophilia A or Factor VII deficiency and Christmas disease or Factor IX deficiency, Hereditary Hemorrhagic Telangiectasia, also known as Rendu-Osler-Weber syndrome, allergic purpura (Henoch Schonlein purpura) and disseminated intravascular coagulation.

[0520] The effect of the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention on the clotting time of blood may be monitored using any of the clotting tests known in the art including, but not limited to, whole blood partial thromboplastin time (PTT), the activated partial thromboplastin time (aPTT), the activated clotting time (ACT), the recalcified activated clotting time, or the Lee-White Clotting time.

[0521] Several diseases and a variety of drugs can cause platelet dysfunction. Thus, in a specific embodiment, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating acquired platelet dysfunction such as platelet dysfunction accompanying kidney failure, leukemia, multiple myeloma, cirrhosis of the liver, and systemic lupus erythematosus as well as platelet dysfunction associated with drug treatments, including

treatment with aspirin, ticlopidine, nonsteroidal anti-inflammatory drugs (used for arthritis, pain, and sprains), and penicillin in high doses.

[0522] In another embodiment, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating diseases and disorders characterized by or associated with increased or decreased numbers of white blood cells. Leukopenia occurs when the number of white blood cells decreases below normal. Leukopenias include, but are not limited to, neutropenia and lymphocytopenia. An increase in the number of white blood cells compared to normal is known as leukocytosis. The body generates increased numbers of white blood cells during infection. Thus, leukocytosis may simply be a normal physiological parameter that reflects infection. Alternatively, leukocytosis may be an indicator of injury or other disease such as cancer. Leukocytoses, include but are not limited to, eosinophilia, and accumulations of macrophages. In specific embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating leukopenia. In other specific embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating leukocytosis.

[0523] Leukopenia may be a generalized decreased in all types of white blood cells, or may be a specific depletion of particular types of white blood cells. Thus, in specific embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating decreases in neutrophil numbers, known as neutropenia. Neutropenias that may be diagnosed, prognosed, prevented, and/or treated by the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention include, but are not limited to, infantile genetic agranulocytosis, familial neutropenia, cyclic neutropenia, neutropenias resulting from or associated with dietary deficiencies (e.g., vitamin B 12 deficiency or folic acid deficiency), neutropenias resulting from or associated with drug treatments (e.g., antibiotic regimens such as penicillin treatment, sulfonamide treatment, anticoagulant treatment, anticonvulsant drugs, anti-thyroid drugs, and cancer chemotherapy), and neutropenias resulting from increased neutrophil destruction that may occur in association with some bacterial or viral infections, allergic disorders, autoimmune diseases, conditions in

which an individual has an enlarged spleen (e.g., Felty syndrome, malaria and sarcoidosis), and some drug treatment regimens.

[0524] The polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating lymphocytopenias (decreased numbers of B and/or T lymphocytes), including, but not limited to lymphocytopenias resulting from or associated with stress, drug treatments (e.g., drug treatment with corticosteroids, cancer chemotherapies, and/or radiation therapies), AIDS infection and/or other diseases such as, for example, cancer, rheumatoid arthritis, systemic lupus erythematosus, chronic infections, some viral infections and/or hereditary disorders (e.g., DiGeorge syndrome, Wiskott-Aldrich Syndrome, severe combined immunodeficiency, ataxia telangiectasia).

[0525] The polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating diseases and disorders associated with macrophage numbers and/or macrophage function including, but not limited to, Gaucher's disease, Niemann-Pick disease, Letterer-Siwe disease and Hand-Schuller-Christian disease.

[0526] In another embodiment, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating diseases and disorders associated with eosinophil numbers and/or eosinophil function including, but not limited to, idiopathic hypereosinophilic syndrome, eosinophilia-myalgia syndrome, and Hand-Schuller-Christian disease.

[0527] In yet another embodiment, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating leukemias and lymphomas including, but not limited to, acute lymphocytic (lymphoblastic) leukemia (ALL), acute myeloid (myelocytic, myelogenous, myeloblastic, or myelomonocytic) leukemia, chronic lymphocytic leukemia (e.g., B cell leukemias, T cell leukemias, Sezary syndrome, and Hairy cell leukemia), chronic myelocytic (myeloid, myelogenous, or granulocytic) leukemia, Hodgkin's lymphoma, non-hodgkin's lymphoma, Burkitt's lymphoma, and mycosis fungoides.

[0528] In other embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in diagnosing, prognosing, preventing, and/or treating diseases and disorders of plasma cells including, but not limited

to, plasma cell dyscrasias, monoclonal gammaopathies, monoclonal gammopathies of undetermined significance, multiple myeloma, macroglobulinemia, Waldenstrom's macroglobulinemia, cryoglobulinemia, and Raynaud's phenomenon.

[0529] In other embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in treating, preventing, and/or diagnosing myeloproliferative disorders, including but not limited to, polycythemia vera, relative polycythemia, secondary polycythemia, myelofibrosis, acute myelofibrosis, agnogenic myelod metaplasia, thrombocythemia, (including both primary and secondary thrombocythemia) and chronic myelocytic leukemia.

[0530] In other embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful as a treatment prior to surgery, to increase blood cell production.

[0531] In other embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful as an agent to enhance the migration, phagocytosis, superoxide production, antibody dependent cellular cytotoxicity of neutrophils, eosinophils and macrophages.

[0532] In other embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful as an agent to increase the number of stem cells in circulation prior to stem cells pheresis. In another specific embodiment, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful as an agent to increase the number of stem cells in circulation prior to platelet pheresis.

[0533] In other embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful as an agent to increase cytokine production.

[0534] In other embodiments, the polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention may be useful in preventing, diagnosing, and/or treating primary hematopoietic disorders.

#### Hyperproliferative Disorders

[0535] In certain embodiments, polynucleotides or polypeptides, or agonists or antagonists of the present invention can be used to treat or detect hyperproliferative disorders, including neoplasms. Polynucleotides or polypeptides, or agonists or antagonists of the present invention may inhibit the proliferation of the disorder through direct or indirect interactions. Alternatively, Polynucleotides or polypeptides, or agonists or antagonists of the present invention may proliferate other cells which can inhibit the hyperproliferative disorder.

[0536] For example, by increasing an immune response, particularly increasing antigenic qualities of the hyperproliferative disorder or by proliferating, differentiating, or mobilizing T-cells, hyperproliferative disorders can be treated. This immune response may be increased by either enhancing an existing immune response, or by initiating a new immune response. Alternatively, decreasing an immune response may also be a method of treating hyperproliferative disorders, such as a chemotherapeutic agent.

[0537] Examples of hyperproliferative disorders that can be treated or detected by polynucleotides or polypeptides, or agonists or antagonists of the present invention include, but are not limited to neoplasms located in the: colon, abdomen, bone, breast, digestive system, liver, pancreas, peritoneum, endocrine glands (adrenal, parathyroid, pituitary, testicles, ovary, thymus, thyroid), eye, head and neck, nervous (central and peripheral), lymphatic system, pelvis, skin, soft tissue, spleen, thorax, and urogenital tract.

[0538] Similarly, other hyperproliferative disorders can also be treated or detected by polynucleotides or polypeptides, or agonists or antagonists of the present invention. Examples of such hyperproliferative disorders include, but are not limited to: Acute Childhood Lymphoblastic Leukemia, Acute Lymphoblastic Leukemia, Acute Lymphocytic Leukemia, Acute Myeloid Leukemia, Adrenocortical Carcinoma, Adult (Primary) Hepatocellular Cancer, Adult (Primary) Liver Cancer, Adult Acute Lymphocytic Leukemia, Adult Acute Myeloid Leukemia, Adult Hodgkin's Disease, Adult Hodgkin's Lymphoma, Adult Lymphocytic Leukemia, Adult Non-Hodgkin's Lymphoma, Adult Primary Liver Cancer, Adult Soft Tissue Sarcoma, AIDS-Related Lymphoma, AIDS-Related Malignancies, Anal Cancer, Astrocytoma, Bile Duct Cancer, Bladder Cancer, Bone Cancer, Brain Stem Glioma, Brain Tumors, Breast Cancer, Cancer of the Renal Pelvis and Ureter, Central Nervous System (Primary) Lymphoma, Central Nervous System Lymphoma, Cerebellar Astrocytoma, Cerebral Astrocytoma, Cervical Cancer, Childhood (Primary) Hepatocellular

Cancer, Childhood (Primary) Liver Cancer, Childhood Acute Lymphoblastic Leukemia, Childhood Acute Myeloid Leukemia, Childhood Brain Stem Glioma, Childhood Cerebellar Astrocytoma, Childhood Cerebral Astrocytoma, Childhood Extracranial Germ Cell Tumors, Childhood Hodgkin's Disease, Childhood Hodgkin's Lymphoma, Childhood Hypothalamic and Visual Pathway Glioma, Childhood Lymphoblastic Leukemia, Childhood Medulloblastoma, Childhood Non-Hodgkin's Lymphoma, Childhood Pineal and Supratentorial Primitive Neuroectodermal Tumors, Childhood Primary Liver Cancer, Childhood Rhabdomyosarcoma, Childhood Soft Tissue Sarcoma, Childhood Visual Pathway and Hypothalamic Glioma, Chronic Lymphocytic Leukemia, Chronic Myelogenous Leukemia, Colon Cancer, Cutaneous T-Cell Lymphoma, Endocrine Pancreas Islet Cell Carcinoma, Endometrial Cancer, Ependymoma, Epithelial Cancer, Esophageal Cancer, Ewing's Sarcoma and Related Tumors, Exocrine Pancreatic Cancer, Extracranial Germ Cell Tumor, Extragonadal Germ Cell Tumor, Extrahepatic Bile Duct Cancer, Eye Cancer, Female Breast Cancer, Gaucher's Disease, Gallbladder Cancer, Gastric Cancer, Gastrointestinal Carcinoid Tumor, Gastrointestinal Tumors, Germ Cell Tumors, Gestational Trophoblastic Tumor, Hairy Cell Leukemia, Head and Neck Cancer, Hepatocellular Cancer, Hodgkin's Disease, Hodgkin's Lymphoma, Hypergammaglobulinemia, Hypopharyngeal Cancer, Intestinal Cancers, Intraocular Melanoma, Islet Cell Carcinoma, Islet Cell Pancreatic Cancer, Kaposi's Sarcoma, Kidney Cancer, Laryngeal Cancer, Lip and Oral Cavity Cancer, Liver Cancer, Lung Cancer, Lymphoproliferative Disorders, Macroglobulinemia, Male Breast Cancer, Malignant Mesothelioma, Malignant Thymoma, Medulloblastoma, Melanoma, Mesothelioma, Metastatic Occult Primary Squamous Neck Cancer, Metastatic Primary Squamous Neck Cancer, Metastatic Squamous Neck Cancer, Multiple Myeloma, Multiple Myeloma/Plasma Cell Neoplasm, Myelodysplastic Syndrome, Myelogenous Leukemia, Myeloid Leukemia, Myeloproliferative Disorders, Nasal Cavity and Paranasal Sinus Cancer, Nasopharyngeal Cancer, Neuroblastoma, Non-Hodgkin's Lymphoma During Pregnancy, Nonmelanoma Skin Cancer, Non-Small Cell Lung Cancer, Occult Primary Metastatic Squamous Neck Cancer, Oropharyngeal Cancer, Osteo-/Malignant Fibrous Sarcoma, Osteosarcoma/Malignant Fibrous Histiocytoma, Osteosarcoma/Malignant Fibrous Histiocytoma of Bone, Ovarian Epithelial Cancer, Ovarian Germ Cell Tumor, Ovarian Low Malignant Potential Tumor, Pancreatic Cancer, Paraproteinemias, Purpura, Parathyroid Cancer, Penile Cancer, Pheochromocytoma, Pituitary Tumor, Plasma Cell

Neoplasm/Multiple Myeloma, Primary Central Nervous System Lymphoma, Primary Liver Cancer, Prostate Cancer, Rectal Cancer, Renal Cell Cancer, Renal Pelvis and Ureter Cancer, Retinoblastoma, Rhabdomyosarcoma, Salivary Gland Cancer, Sarcoidosis Sarcomas, Sezary Syndrome, Skin Cancer, Small Cell Lung Cancer, Small Intestine Cancer, Soft Tissue Sarcoma, Squamous Neck Cancer, Stomach Cancer, Supratentorial Primitive Neuroectodermal and Pineal Tumors, T-Cell Lymphoma, Testicular Cancer, Thymoma, Thyroid Cancer, Transitional Cell Cancer of the Renal Pelvis and Ureter, Transitional Renal Pelvis and Ureter Cancer, Trophoblastic Tumors, Ureter and Renal Pelvis Cell Cancer, Urethral Cancer, Uterine Cancer, Uterine Sarcoma, Vaginal Cancer, Visual Pathway and Hypothalamic Glioma, Vulvar Cancer, Waldenstrom's Macroglobulinemia, Wilms' Tumor, and any other hyperproliferative disease, besides neoplasia, located in an organ system listed above.

[0539] In another preferred embodiment, polynucleotides or polypeptides, or agonists or antagonists of the present invention are used to diagnose, prognose, prevent, and/or treat premalignant conditions and to prevent progression to a neoplastic or malignant state, including but not limited to those disorders described above. Such uses are indicated in conditions known or suspected of preceding progression to neoplasia or cancer, in particular, where non-neoplastic cell growth consisting of hyperplasia, metaplasia, or most particularly, dysplasia has occurred (for review of such abnormal growth conditions, see Robbins and Angell, 1976, Basic Pathology, 2d Ed., W. B. Saunders Co., Philadelphia, pp. 68-79.)

[0540] Hyperplasia is a form of controlled cell proliferation, involving an increase in cell number in a tissue or organ, without significant alteration in structure or function. Hyperplastic disorders which can be diagnosed, prognosed, prevented, and/or treated with compositions of the invention (including polynucleotides, polypeptides, agonists or antagonists) include, but are not limited to, angiofollicular mediastinal lymph node hyperplasia, angiolymphoid hyperplasia with eosinophilia, atypical melanocytic hyperplasia, basal cell hyperplasia, benign giant lymph node hyperplasia, cementum hyperplasia, congenital adrenal hyperplasia, congenital sebaceous hyperplasia, cystic hyperplasia, cystic hyperplasia of the breast, denture hyperplasia, ductal hyperplasia, endometrial hyperplasia, fibromuscular hyperplasia, focal epithelial hyperplasia, gingival hyperplasia, inflammatory fibrous hyperplasia, inflammatory papillary hyperplasia, intravascular papillary endothelial hyperplasia, nodular hyperplasia of prostate, nodular regenerative hyperplasia,



pseudoepitheliomatous hyperplasia, senile sebaceous hyperplasia, and verrucous hyperplasia.

[0541] Metaplasia is a form of controlled cell growth in which one type of adult or fully differentiated cell substitutes for another type of adult cell. Metaplastic disorders which can be diagnosed, prognosed, prevented, and/or treated with compositions of the invention (including polynucleotides, polypeptides, agonists or antagonists) include, but are not limited to, agnogenic myeloid metaplasia, apocrine metaplasia, atypical metaplasia, autoparenchymatous metaplasia, connective tissue metaplasia, epithelial metaplasia, intestinal metaplasia, metaplastic anemia, metaplastic ossification, metaplastic polyps, myeloid metaplasia, primary myeloid metaplasia, secondary myeloid metaplasia, squamous metaplasia, squamous metaplasia of amnion, and symptomatic myeloid metaplasia.

[0542] Dysplasia is frequently a forerunner of cancer, and is found mainly in the epithelia; it is the most disorderly form of non-neoplastic cell growth, involving a loss in individual cell uniformity and in the architectural orientation of cells. Dysplastic cells often have abnormally large, deeply stained nuclei, and exhibit pleomorphism. Dysplasia characteristically occurs where there exists chronic irritation or inflammation. Dysplastic disorders which can be diagnosed, prognosed, prevented, and/or treated with compositions of the invention (including polynucleotides, polypeptides, agonists or antagonists) include, but are not limited to, anhidrotic ectodermal dysplasia, anterofacial dysplasia, asphyxiating thoracic dysplasia, atriadigital dysplasia, bronchopulmonary dysplasia, cerebral dysplasia, cervical dysplasia, chondroectodermal dysplasia, cleidocranial dysplasia, congenital ectodermal dysplasia, craniodiaphysial dysplasia, craniocarpotarsal dysplasia, craniometaphysial dysplasia, dentin dysplasia, diaphysial dysplasia, ectodermal dysplasia, enamel dysplasia, encephalo-ophthalmic dysplasia, dysplasia epiphysialis hemimelia, dysplasia epiphysialis multiplex, dysplasia epiphysialis punctata, epithelial dysplasia, faciodigitogenital dysplasia, familial fibrous dysplasia of jaws, familial white folded dysplasia, fibromuscular dysplasia, fibrous dysplasia of bone, florid osseous dysplasia, hereditary renal-retinal dysplasia, hidrotic ectodermal dysplasia, hypohidrotic ectodermal dysplasia, lymphopenic thymic dysplasia, mammary dysplasia, mandibulofacial dysplasia, metaphysial dysplasia, Mondini dysplasia, monostotic fibrous dysplasia, mucoepithelial dysplasia, multiple epiphysial dysplasia, oculoauriculovertebral dysplasia, oculodentodigital dysplasia, oculovertbral dysplasia, odontogenic dysplasia, ophthalmomandibulomelic dysplasia, periapical cemental dysplasia,

polyostotic fibrous dysplasia, pseudoachondroplastic spondyloepiphyseal dysplasia, retinal dysplasia, septo-optic dysplasia, spondyloepiphyseal dysplasia, and ventriculoradial dysplasia.

[0543] Additional pre-neoplastic disorders which can be diagnosed, prognosed, prevented, and/or treated with compositions of the invention (including polynucleotides, polypeptides, agonists or antagonists) include, but are not limited to, benign dysproliferative disorders (e.g., benign tumors, fibrocystic conditions, tissue hypertrophy, intestinal polyps, colon polyps, and esophageal dysplasia), leukoplakia, keratoses, Bowen's disease, Farmer's Skin, solar cheilitis, and solar keratosis.

[0544] In another embodiment, a polypeptide of the invention, or polynucleotides, antibodies, agonists, or antagonists corresponding to that polypeptide, may be used to diagnose and/or prognose disorders associated with the tissue(s) in which the polypeptide of the invention is expressed, including one, two, three, four, five, or more tissues disclosed in Table 1, column 8 (Tissue Distribution Library Code).

[0545] In another embodiment, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention conjugated to a toxin or a radioactive isotope, as described herein, may be used to treat cancers and neoplasms, including, but not limited to those described herein. In a further preferred embodiment, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention conjugated to a toxin or a radioactive isotope, as described herein, may be used to treat acute myelogenous leukemia.

[0546] Additionally, polynucleotides, polypeptides, and/or agonists or antagonists of the invention may affect apoptosis, and therefore, would be useful in treating a number of diseases associated with increased cell survival or the inhibition of apoptosis. For example, diseases associated with increased cell survival or the inhibition of apoptosis that could be diagnosed, prognosed, prevented, and/or treated by polynucleotides, polypeptides, and/or agonists or antagonists of the invention, include cancers (such as follicular lymphomas, carcinomas with p53 mutations, and hormone-dependent tumors, including, but not limited to colon cancer, cardiac tumors, pancreatic cancer, melanoma, retinoblastoma, glioblastoma, lung cancer, intestinal cancer, testicular cancer, stomach cancer, neuroblastoma, myxoma, myoma, lymphoma, endothelioma, osteoblastoma, osteoclastoma, osteosarcoma, chondrosarcoma, adenoma, breast cancer, prostate cancer, Kaposi's sarcoma and ovarian cancer); autoimmune disorders such as, multiple sclerosis, Sjogren's syndrome, Hashimoto's

thyroiditis, biliary cirrhosis, Behcet's disease, Crohn's disease, polymyositis, systemic lupus erythematosus and immune-related glomerulonephritis and rheumatoid arthritis) and viral infections (such as herpes viruses, pox viruses and adenoviruses), inflammation, graft v. host disease, acute graft rejection, and chronic graft rejection.

[0547] In preferred embodiments, polynucleotides, polypeptides, and/or agonists or antagonists of the invention are used to inhibit growth, progression, and/or metastasis of cancers, in particular those listed above.

[0548] Additional diseases or conditions associated with increased cell survival that could be diagnosed, prognosed, prevented, and/or treated by polynucleotides, polypeptides, and/or agonists or antagonists of the invention, include, but are not limited to, progression, and/or metastases of malignancies and related disorders such as leukemia (including acute leukemias (e.g., acute lymphocytic leukemia, acute myelocytic leukemia (including myeloblastic, promyelocytic, myelomonocytic, monocytic, and erythroleukemia)) and chronic leukemias (e.g., chronic myelocytic (granulocytic) leukemia and chronic lymphocytic leukemia)), polycythemia vera, lymphomas (e.g., Hodgkin's disease and non-Hodgkin's disease), multiple myeloma, Waldenstrom's macroglobulinemia, heavy chain disease, and solid tumors including, but not limited to, sarcomas and carcinomas such as fibrosarcoma, myxosarcoma, liposarcoma, chondrosarcoma, osteogenic sarcoma, chordoma, angiosarcoma, endotheliosarcoma, lymphangiosarcoma, lymphangioendotheliosarcoma, synovioma, mesothelioma, Ewing's tumor, leiomyosarcoma, rhabdomyosarcoma, colon carcinoma, pancreatic cancer, breast cancer, ovarian cancer, prostate cancer, squamous cell carcinoma, basal cell carcinoma, adenocarcinoma, sweat gland carcinoma, sebaceous gland carcinoma, papillary carcinoma, papillary adenocarcinomas, cystadenocarcinoma, medullary carcinoma, bronchogenic carcinoma, renal cell carcinoma, hepatoma, bile duct carcinoma, choriocarcinoma, seminoma, embryonal carcinoma, Wilm's tumor, cervical cancer, testicular tumor, lung carcinoma, small cell lung carcinoma, bladder carcinoma, epithelial carcinoma, glioma, astrocytoma, medulloblastoma, craniopharyngioma, ependymoma, pinealoma, emangioblastoma, acoustic neuroma, oligodendroglioma, menangioma, melanoma, neuroblastoma, and retinoblastoma.

[0549] Diseases associated with increased apoptosis that could be diagnosed, prognosed, prevented, and/or treated by polynucleotides, polypeptides, and/or agonists or antagonists of the invention, include AIDS; neurodegenerative disorders (such as Alzheimer's disease,

Parkinson's disease, amyotrophic lateral sclerosis, retinitis pigmentosa, cerebellar degeneration and brain tumor or prior associated disease); autoimmune disorders (such as, multiple sclerosis, Sjogren's syndrome, Hashimoto's thyroiditis, biliary cirrhosis, Behcet's disease, Crohn's disease, polymyositis, systemic lupus erythematosus and immune-related glomerulonephritis and rheumatoid arthritis) myelodysplastic syndromes (such as aplastic anemia), graft v. host disease, ischemic injury (such as that caused by myocardial infarction, stroke and reperfusion injury), liver injury (e.g., hepatitis related liver injury, ischemia/reperfusion injury, cholestasis (bile duct injury) and liver cancer); toxin-induced liver disease (such as that caused by alcohol), septic shock, cachexia and anorexia.

[0550] Hyperproliferative diseases and/or disorders that could be diagnosed, prognosed, prevented, and/or treated by polynucleotides, polypeptides, and/or agonists or antagonists of the invention, include, but are not limited to, neoplasms located in the liver, abdomen, bone, breast, digestive system, pancreas, peritoneum, endocrine glands (adrenal, parathyroid, pituitary, testicles, ovary, thymus, thyroid), eye, head and neck, nervous system (central and peripheral), lymphatic system, pelvis, skin, soft tissue, spleen, thorax, and urogenital tract.

[0551] Similarly, other hyperproliferative disorders can also be diagnosed, prognosed, prevented, and/or treated by polynucleotides, polypeptides, and/or agonists or antagonists of the invention. Examples of such hyperproliferative disorders include, but are not limited to: hypergammaglobulinemia, lymphoproliferative disorders, paraproteinemias, purpura, sarcoidosis, Sezary Syndrome, Waldenström's macroglobulinemia, Gaucher's Disease, histiocytosis, and any other hyperproliferative disease, besides neoplasia, located in an organ system listed above.

[0552] Another preferred embodiment utilizes polynucleotides of the present invention to inhibit aberrant cellular division, by gene therapy using the present invention, and/or protein fusions or fragments thereof.

[0553] Thus, the present invention provides a method for treating cell proliferative disorders by inserting into an abnormally proliferating cell a polynucleotide of the present invention, wherein said polynucleotide represses said expression.

[0554] Another embodiment of the present invention provides a method of treating cell-proliferative disorders in individuals comprising administration of one or more active gene copies of the present invention to an abnormally proliferating cell or cells. In a preferred embodiment, polynucleotides of the present invention is a DNA construct comprising a

recombinant expression vector effective in expressing a DNA sequence encoding said polynucleotides. In another preferred embodiment of the present invention, the DNA construct encoding the polynucleotides of the present invention is inserted into cells to be treated utilizing a retrovirus, or more preferably an adenoviral vector (See G J. Nabel, et. al., PNAS 1999 96: 324-326, which is hereby incorporated by reference). In a most preferred embodiment, the viral vector is defective and will not transform non-proliferating cells, only proliferating cells. Moreover, in a preferred embodiment, the polynucleotides of the present invention inserted into proliferating cells either alone, or in combination with or fused to other polynucleotides, can then be modulated via an external stimulus (i.e. magnetic, specific small molecule, chemical, or drug administration, etc.), which acts upon the promoter upstream of said polynucleotides to induce expression of the encoded protein product. As such the beneficial therapeutic affect of the present invention may be expressly modulated (i.e. to increase, decrease, or inhibit expression of the present invention) based upon said external stimulus.

[0555] Polynucleotides of the present invention may be useful in repressing expression of oncogenic genes or antigens. By "repressing expression of the oncogenic genes " is intended the suppression of the transcription of the gene, the degradation of the gene transcript (pre-message RNA), the inhibition of splicing, the destruction of the messenger RNA, the prevention of the post-translational modifications of the protein, the destruction of the protein, or the inhibition of the normal function of the protein.

[0556] For local administration to abnormally proliferating cells, polynucleotides of the present invention may be administered by any method known to those of skill in the art including, but not limited to transfection, electroporation, microinjection of cells, or in vehicles such as liposomes, lipofectin, or as naked polynucleotides, or any other method described throughout the specification. The polynucleotide of the present invention may be delivered by known gene delivery systems such as, but not limited to, retroviral vectors (Gilboa, J. Virology 44:845 (1982); Hocke, Nature 320:275 (1986); Wilson, et al., Proc. Natl. Acad. Sci. U.S.A. 85:3014), vaccinia virus system (Chakrabarty et al., Mol. Cell Biol. 5:3403 (1985) or other efficient DNA delivery systems (Yates et al., Nature 313:812 (1985)) known to those skilled in the art. These references are exemplary only and are hereby incorporated by reference. In order to specifically deliver or transfect cells which are abnormally proliferating and spare non-dividing cells, it is preferable to utilize a retrovirus, or adenoviral

(as described in the art and elsewhere herein) delivery system known to those of skill in the art. Since host DNA replication is required for retroviral DNA to integrate and the retrovirus will be unable to self replicate due to the lack of the retrovirus genes needed for its life cycle. Utilizing such a retroviral delivery system for polynucleotides of the present invention will target said gene and constructs to abnormally proliferating cells and will spare the non-dividing normal cells.

[0557] The polynucleotides of the present invention may be delivered directly to cell proliferative disorder/disease sites in internal organs, body cavities and the like by use of imaging devices used to guide an injecting needle directly to the disease site. The polynucleotides of the present invention may also be administered to disease sites at the time of surgical intervention.

[0558] By "cell proliferative disease" is meant any human or animal disease or disorder, affecting any one or any combination of organs, cavities, or body parts, which is characterized by single or multiple local abnormal proliferations of cells, groups of cells, or tissues, whether benign or malignant.

[0559] Any amount of the polynucleotides of the present invention may be administered as long as it has a biologically inhibiting effect on the proliferation of the treated cells. Moreover, it is possible to administer more than one of the polynucleotide of the present invention simultaneously to the same site. By "biologically inhibiting" is meant partial or total growth inhibition as well as decreases in the rate of proliferation or growth of the cells. The biologically inhibitory dose may be determined by assessing the effects of the polynucleotides of the present invention on target malignant or abnormally proliferating cell growth in tissue culture, tumor growth in animals and cell cultures, or any other method known to one of ordinary skill in the art.

[0560] The present invention is further directed to antibody-based therapies which involve administering of anti-polypeptides and anti-polynucleotide antibodies to a mammalian, preferably human, patient for treating one or more of the described disorders. Methods for producing anti-polypeptides and anti-polynucleotide antibodies polyclonal and monoclonal antibodies are described in detail elsewhere herein. Such antibodies may be provided in pharmaceutically acceptable compositions as known in the art or as described herein.

[0561] A summary of the ways in which the antibodies of the present invention may be used therapeutically includes binding polynucleotides or polypeptides of the present

invention locally or systemically in the body or by direct cytotoxicity of the antibody, e.g. as mediated by complement (CDC) or by effector cells (ADCC). Some of these approaches are described in more detail below. Armed with the teachings provided herein, one of ordinary skill in the art will know how to use the antibodies of the present invention for diagnostic, monitoring or therapeutic purposes without undue experimentation.

[0562] In particular, the antibodies, fragments and derivatives of the present invention are useful for treating a subject having or developing cell proliferative and/or differentiation disorders as described herein. Such treatment comprises administering a single or multiple doses of the antibody, or a fragment, derivative, or a conjugate thereof.

[0563] The antibodies of this invention may be advantageously utilized in combination with other monoclonal or chimeric antibodies, or with lymphokines or hematopoietic growth factors, for example., which serve to increase the number or activity of effector cells which interact with the antibodies.

[0564] It is preferred to use high affinity and/or potent *in vivo* inhibiting and/or neutralizing antibodies against polypeptides or polynucleotides of the present invention, fragments or regions thereof, for both immunoassays directed to and therapy of disorders related to polynucleotides or polypeptides, including fragments thereof, of the present invention. Such antibodies, fragments, or regions, will preferably have an affinity for polynucleotides or polypeptides, including fragments thereof. Preferred binding affinities include those with a dissociation constant or  $K_d$  less than  $5 \times 10^{-6}M$ ,  $10^{-6}M$ ,  $5 \times 10^{-7}M$ ,  $10^{-7}M$ ,  $5 \times 10^{-8}M$ ,  $10^{-8}M$ ,  $5 \times 10^{-9}M$ ,  $10^{-9}M$ ,  $5 \times 10^{-10}M$ ,  $10^{-10}M$ ,  $5 \times 10^{-11}M$ ,  $10^{-11}M$ ,  $5 \times 10^{-12}M$ ,  $10^{-12}M$ ,  $5 \times 10^{-13}M$ ,  $10^{-13}M$ ,  $5 \times 10^{-14}M$ ,  $10^{-14}M$ ,  $5 \times 10^{-15}M$ , and  $10^{-15}M$ .

[0565] Moreover, polypeptides of the present invention are useful in inhibiting the angiogenesis of proliferative cells or tissues, either alone, as a protein fusion, or in combination with other polypeptides directly or indirectly, as described elsewhere herein. In a most preferred embodiment, said anti-angiogenesis effect may be achieved indirectly, for example, through the inhibition of hematopoietic, tumor-specific cells, such as tumor-associated macrophages (See Joseph IB, et al. J Natl Cancer Inst, 90(21):1648-53 (1998), which is hereby incorporated by reference). Antibodies directed to polypeptides or polynucleotides of the present invention may also result in inhibition of angiogenesis directly, or indirectly (See Witte L, et al., Cancer Metastasis Rev. 17(2):155-61 (1998), which is hereby incorporated by reference)).

[0566] Polypeptides, including protein fusions, of the present invention, or fragments thereof may be useful in inhibiting proliferative cells or tissues through the induction of apoptosis. Said polypeptides may act either directly, or indirectly to induce apoptosis of proliferative cells and tissues, for example in the activation of a death-domain receptor, such as tumor necrosis factor (TNF) receptor-1, CD95 (Fas/APO-1), TNF-receptor-related apoptosis-mediated protein (TRAMP) and TNF-related apoptosis-inducing ligand (TRAIL) receptor-1 and -2 (See Schulze-Osthoff K, et.al., Eur J Biochem 254(3):439-59 (1998), which is hereby incorporated by reference). Moreover, in another preferred embodiment of the present invention, said polypeptides may induce apoptosis through other mechanisms, such as in the activation of other proteins which will activate apoptosis, or through stimulating the expression of said proteins, either alone or in combination with small molecule drugs or adjuvants, such as apoptonin, galectins, thioredoxins, anti-inflammatory proteins (See for example, Mutat Res 400(1-2):447-55 (1998), Med Hypotheses.50(5):423-33 (1998), Chem Biol Interact. Apr 24;111-112:23-34 (1998), J Mol Med.76(6):402-12 (1998), Int J Tissue React;20(1):3-15 (1998), which are all hereby incorporated by reference).

[0567] Polypeptides, including protein fusions to, or fragments thereof, of the present invention are useful in inhibiting the metastasis of proliferative cells or tissues. Inhibition may occur as a direct result of administering polypeptides, or antibodies directed to said polypeptides as described elsewhere herein, or indirectly, such as activating the expression of proteins known to inhibit metastasis, for example alpha 4 integrins, (See, e.g., Curr Top Microbiol Immunol 1998;231:125-41, which is hereby incorporated by reference). Such therapeutic affects of the present invention may be achieved either alone, or in combination with small molecule drugs or adjuvants.

[0568] In another embodiment, the invention provides a method of delivering compositions containing the polypeptides of the invention (e.g., compositions containing polypeptides or polypeptide antibodies associated with heterologous polypeptides, heterologous nucleic acids, toxins, or prodrugs) to targeted cells expressing the polypeptide of the present invention. Polypeptides or polypeptide antibodies of the invention may be associated with with heterologous polypeptides, heterologous nucleic acids, toxins, or prodrugs via hydrophobic, hydrophilic, ionic and/or covalent interactions.

[0569] Polypeptides, protein fusions to, or fragments thereof, of the present invention are useful in enhancing the immunogenicity and/or antigenicity of proliferating cells or tissues,



either directly, such as would occur if the polypeptides of the present invention 'vaccinated' the immune response to respond to proliferative antigens and immunogens, or indirectly, such as in activating the expression of proteins known to enhance the immune response (e.g. chemokines), to said antigens and immunogens.

#### Renal Disorders

[0570] Polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention, may be used to treat, prevent, diagnose, and/or prognose disorders of the renal system. Renal disorders which can be diagnosed, prognosed, prevented, and/or treated with compositions of the invention include, but are not limited to, kidney failure, nephritis, blood vessel disorders of kidney, metabolic and congenital kidney disorders, urinary disorders of the kidney, autoimmune disorders, sclerosis and necrosis, electrolyte imbalance, and kidney cancers.

[0571] Kidney diseases which can be diagnosed, prognosed, prevented, and/or treated with compositions of the invention include, but are not limited to, acute kidney failure, chronic kidney failure, atheroembolic renal failure, end-stage renal disease, inflammatory diseases of the kidney (e.g., acute glomerulonephritis, postinfectious glomerulonephritis, rapidly progressive glomerulonephritis, nephrotic syndrome, membranous glomerulonephritis, familial nephrotic syndrome, membranoproliferative glomerulonephritis I and II, mesangial proliferative glomerulonephritis, chronic glomerulonephritis, acute tubulointerstitial nephritis, chronic tubulointerstitial nephritis, acute post-streptococcal glomerulonephritis (PSGN), pyelonephritis, lupus nephritis, chronic nephritis, interstitial nephritis, and post-streptococcal glomerulonephritis), blood vessel disorders of the kidneys (e.g., kidney infarction, atheroembolic kidney disease, cortical necrosis, malignant nephrosclerosis, renal vein thrombosis, renal underperfusion, renal retinopathy, renal ischemia-reperfusion, renal artery embolism, and renal artery stenosis), and kidney disorders resulting from urinary tract disease (e.g., pyelonephritis, hydronephrosis, urolithiasis (renal lithiasis, nephrolithiasis), reflux nephropathy, urinary tract infections, urinary retention, and acute or chronic unilateral obstructive uropathy.)

[0572] In addition, compositions of the invention can be used to diagnose, prognose, prevent, and/or treat metabolic and congenital disorders of the kidney (e.g., uremia, renal

amyloidosis, renal osteodystrophy, renal tubular acidosis, renal glycosuria, nephrogenic diabetes insipidus, cystinuria, Fanconi's syndrome, renal fibrocystic osteosis (renal rickets), Hartnup disease, Bartter's syndrome, Liddle's syndrome, polycystic kidney disease, medullary cystic disease, medullary sponge kidney, Alport's syndrome, nail-patella syndrome, congenital nephrotic syndrome, CRUSH syndrome, horseshoe kidney, diabetic nephropathy, nephrogenic diabetes insipidus, analgesic nephropathy, kidney stones, and membranous nephropathy), and autoimmune disorders of the kidney (e.g., systemic lupus erythematosus (SLE), Goodpasture syndrome, IgA nephropathy, and IgM mesangial proliferative glomerulonephritis).

[0573] Compositions of the invention can also be used to diagnose, prognose, prevent, and/or treat sclerotic or necrotic disorders of the kidney (e.g., glomerulosclerosis, diabetic nephropathy, focal segmental glomerulosclerosis (FSGS), necrotizing glomerulonephritis, and renal papillary necrosis), cancers of the kidney (e.g., nephroma, hypernephroma, nephroblastoma, renal cell cancer, transitional cell cancer, renal adenocarcinoma, squamous cell cancer, and Wilm's tumor), and electrolyte imbalances (e.g., nephrocalcinosis, pyuria, edema, hydronephritis, proteinuria, hyponatremia, hypernatremia, hypokalemia, hyperkalemia, hypocalcemia, hypercalcemia, hypophosphatemia, and hyperphosphatemia).

[0574] Polypeptides may be administered using any method known in the art, including, but not limited to, direct needle injection at the delivery site, intravenous injection, topical administration, catheter infusion, biolistic injectors, particle accelerators, gelfoam sponge depots, other commercially available depot materials, osmotic pumps, oral or suppository solid pharmaceutical formulations, decanting or topical applications during surgery, aerosol delivery. Such methods are known in the art. Polypeptides may be administered as part of a Therapeutic, described in more detail below. Methods of delivering polynucleotides are described in more detail herein.

#### Cardiovascular Disorders

[0575] Polynucleotides or polypeptides, or agonists or antagonists of the present invention, may be used to treat, prevent, diagnose, and/or prognose cardiovascular disorders, including, but not limited to, peripheral artery disease, such as limb ischemia.

[0576] Cardiovascular disorders include, but are not limited to, cardiovascular abnormalities, such as arterio-arterial fistula, arteriovenous fistula, cerebral arteriovenous malformations, congenital heart defects, pulmonary atresia, and Scimitar Syndrome. Congenital heart defects include, but are not limited to, aortic coarctation, cor triatriatum, coronary vessel anomalies, crisscross heart, dextrocardia, patent ductus arteriosus, Ebstein's anomaly, Eisenmenger complex, hypoplastic left heart syndrome, levocardia, tetralogy of fallot, transposition of great vessels, double outlet right ventricle, tricuspid atresia, persistent truncus arteriosus, and heart septal defects, such as aortopulmonary septal defect, endocardial cushion defects, Lutembacher's Syndrome, trilogly of Fallot, ventricular heart septal defects.

[0577] Cardiovascular disorders also include, but are not limited to, heart disease, such as arrhythmias, carcinoid heart disease, high cardiac output, low cardiac output, cardiac tamponade, endocarditis (including bacterial), heart aneurysm, cardiac arrest, congestive heart failure, congestive cardiomyopathy, paroxysmal dyspnea, cardiac edema, heart hypertrophy, congestive cardiomyopathy, left ventricular hypertrophy, right ventricular hypertrophy, post-infarction heart rupture, ventricular septal rupture, heart valve diseases, myocardial diseases, myocardial ischemia, pericardial effusion, pericarditis (including constrictive and tuberculous), pneumopericardium, postpericardiotomy syndrome, pulmonary heart disease, rheumatic heart disease, ventricular dysfunction, hyperemia, cardiovascular pregnancy complications, Scimitar Syndrome, cardiovascular syphilis, and cardiovascular tuberculosis.

[0578] Arrhythmias include, but are not limited to, sinus arrhythmia, atrial fibrillation, atrial flutter, bradycardia, extrasystole, Adams-Stokes Syndrome, bundle-branch block, sinoatrial block, long QT syndrome, parasystole, Lown-Ganong-Levine Syndrome, Mahaim-type pre-excitation syndrome, Wolff-Parkinson-White syndrome, sick sinus syndrome, tachycardias, and ventricular fibrillation. Tachycardias include paroxysmal tachycardia, supraventricular tachycardia, accelerated idioventricular rhythm, atrioventricular nodal reentry tachycardia, ectopic atrial tachycardia, ectopic junctional tachycardia, sinoatrial nodal reentry tachycardia, sinus tachycardia, Torsades de Pointes, and ventricular tachycardia.

[0579] Heart valve diseases include, but are not limited to, aortic valve insufficiency, aortic valve stenosis, hear murmurs, aortic valve prolapse, mitral valve prolapse, tricuspid valve prolapse, mitral valve insufficiency, mitral valve stenosis, pulmonary atresia,

pulmonary valve insufficiency, pulmonary valve stenosis, tricuspid atresia, tricuspid valve insufficiency, and tricuspid valve stenosis.

[0580] Myocardial diseases include, but are not limited to, alcoholic cardiomyopathy, congestive cardiomyopathy, hypertrophic cardiomyopathy, aortic subvalvular stenosis, pulmonary subvalvular stenosis, restrictive cardiomyopathy, Chagas cardiomyopathy, endocardial fibroelastosis, endomyocardial fibrosis, Kearns Syndrome, myocardial reperfusion injury, and myocarditis.

[0581] Myocardial ischemias include, but are not limited to, coronary disease, such as angina pectoris, coronary aneurysm, coronary arteriosclerosis, coronary thrombosis, coronary vasospasm, myocardial infarction and myocardial stunning.

[0582] Cardiovascular diseases also include vascular diseases such as aneurysms, angiodyplasia, angiomas, bacillary angiomas, Hippel-Lindau Disease, Klippel-Trenaunay-Weber Syndrome, Sturge-Weber Syndrome, angioneurotic edema, aortic diseases, Takayasu's Arteritis, aortitis, Leriche's Syndrome, arterial occlusive diseases, arteritis, enarteritis, polyarteritis nodosa, cerebrovascular disorders, diabetic angiopathies, diabetic retinopathy, embolisms, thrombosis, erythromelalgia, hemorrhoids, hepatic veno-occlusive disease, hypertension, hypotension, ischemia, peripheral vascular diseases, phlebitis, pulmonary veno-occlusive disease, Raynaud's disease, CREST syndrome, retinal vein occlusion, Scimitar syndrome, superior vena cava syndrome, telangiectasia, ataxia telangiectasia, hereditary hemorrhagic telangiectasia, varicocele, varicose veins, varicose ulcer, vasculitis, and venous insufficiency.

[0583] Aneurysms include, but are not limited to, dissecting aneurysms, false aneurysms, infected aneurysms, ruptured aneurysms, aortic aneurysms, cerebral aneurysms, coronary aneurysms, heart aneurysms, and iliac aneurysms.

[0584] Arterial occlusive diseases include, but are not limited to, arteriosclerosis, intermittent claudication, carotid stenosis, fibromuscular dysplasias, mesenteric vascular occlusion, Moyamoya disease, renal artery obstruction, retinal artery occlusion, and thromboangiitis obliterans.

[0585] Cerebrovascular disorders include, but are not limited to, carotid artery diseases, cerebral amyloid angiopathy, cerebral aneurysm, cerebral anoxia, cerebral arteriosclerosis, cerebral arteriovenous malformation, cerebral artery diseases, cerebral embolism and thrombosis, carotid artery thrombosis, sinus thrombosis, Wallenberg's syndrome, cerebral

hemorrhage, epidural hematoma, subdural hematoma, subarachnoid hemorrhage, cerebral infarction, cerebral ischemia (including transient), subclavian steal syndrome, periventricular leukomalacia, vascular headache, cluster headache, migraine, and vertebrobasilar insufficiency.

[0586] Embolisms include, but are not limited to, air embolisms, amniotic fluid embolisms, cholesterol embolisms, blue toe syndrome, fat embolisms, pulmonary embolisms, and thromboembolisms. Thrombosis include, but are not limited to, coronary thrombosis, hepatic vein thrombosis, retinal vein occlusion, carotid artery thrombosis, sinus thrombosis, Wallenberg's syndrome, and thrombophlebitis.

[0587] Ischemic disorders include, but are not limited to, cerebral ischemia, ischemic colitis, compartment syndromes, anterior compartment syndrome, myocardial ischemia, reperfusion injuries, and peripheral limb ischemia. Vasculitis includes, but is not limited to, aortitis, arteritis, Behcet's Syndrome, Churg-Strauss Syndrome, mucocutaneous lymph node syndrome, thromboangiitis obliterans, hypersensitivity vasculitis, Schoenlein-Henoch purpura, allergic cutaneous vasculitis, and Wegener's granulomatosis.

[0588] Polypeptides may be administered using any method known in the art, including, but not limited to, direct needle injection at the delivery site, intravenous injection, topical administration, catheter infusion, biolistic injectors, particle accelerators, gelfoam sponge depots, other commercially available depot materials, osmotic pumps, oral or suppositorial solid pharmaceutical formulations, decanting or topical applications during surgery, aerosol delivery. Such methods are known in the art. Polypeptides may be administered as part of a Therapeutic, described in more detail below. Methods of delivering polynucleotides are described in more detail herein.

#### Respiratory Disorders

[0589] Polynucleotides or polypeptides, or agonists or antagonists of the present invention may be used to treat, prevent, diagnose, and/or prognose diseases and/or disorders of the respiratory system.

[0590] Diseases and disorders of the respiratory system include, but are not limited to, nasal vestibulitis, nonallergic rhinitis (e.g., acute rhinitis, chronic rhinitis, atrophic rhinitis, vasomotor rhinitis), nasal polyps, and sinusitis, juvenile angiofibromas, cancer of the nose

and juvenile papillomas, vocal cord polyps, nodules (singer's nodules), contact ulcers, vocal cord paralysis, laryngoceles, pharyngitis (e.g., viral and bacterial), tonsillitis, tonsillar cellulitis, parapharyngeal abscess, laryngitis, laryngoceles, and throat cancers (e.g., cancer of the nasopharynx, tonsil cancer, larynx cancer), lung cancer (e.g., squamous cell carcinoma, small cell (oat cell) carcinoma, large cell carcinoma, and adenocarcinoma), allergic disorders (eosinophilic pneumonia, hypersensitivity pneumonitis (e.g., extrinsic allergic alveolitis, allergic interstitial pneumonitis, organic dust pneumoconiosis, allergic bronchopulmonary aspergillosis, asthma, Wegener's granulomatosis (granulomatous vasculitis), Goodpasture's syndrome)), pneumonia (e.g., bacterial pneumonia (e.g., *Streptococcus pneumoniae* (pneumococcal pneumonia), *Staphylococcus aureus* (staphylococcal pneumonia), Gram-negative bacterial pneumonia (caused by, e.g., *Klebsiella* and *Pseudomonas spp.*), *Mycoplasma pneumoniae* pneumonia, *Hemophilus influenzae* pneumonia, *Legionella pneumophila* (Legionnaires' disease), and *Chlamydia psittaci* (Psittacosis))), and viral pneumonia (e.g., influenza, chickenpox (varicella).

[0591] Additional diseases and disorders of the respiratory system include, but are not limited to bronchiolitis, polio (poliomyelitis), croup, respiratory syncytial viral infection, mumps, erythema infectiosum (fifth disease), roseola infantum, progressive rubella panencephalitis, german measles, and subacute sclerosing panencephalitis), fungal pneumonia (e.g., Histoplasmosis, Coccidioidomycosis, Blastomycosis, fungal infections in people with severely suppressed immune systems (e.g., cryptococcosis, caused by *Cryptococcus neoformans*; aspergillosis, caused by *Aspergillus spp.*; candidiasis, caused by *Candida*; and mucormycosis)), *Pneumocystis carinii* (pneumocystis pneumonia), atypical pneumonias (e.g., *Mycoplasma* and *Chlamydia spp.*), opportunistic infection pneumonia, nosocomial pneumonia, chemical pneumonitis, and aspiration pneumonia, pleural disorders (e.g., pleurisy, pleural effusion, and pneumothorax (e.g., simple spontaneous pneumothorax, complicated spontaneous pneumothorax, tension pneumothorax)), obstructive airway diseases (e.g., asthma, chronic obstructive pulmonary disease (COPD), emphysema, chronic or acute bronchitis), occupational lung diseases (e.g., silicosis, black lung (coal workers' pneumoconiosis), asbestosis, berylliosis, occupational asthma, byssinosis, and benign pneumoconioses), Infiltrative Lung Disease (e.g., pulmonary fibrosis (e.g., fibrosing alveolitis, usual interstitial pneumonia), idiopathic pulmonary fibrosis, desquamative interstitial pneumonia, lymphoid interstitial pneumonia, histiocytosis X (e.g., Letterer-Siwe

disease, Hand-Schüller-Christian disease, eosinophilic granuloma), idiopathic pulmonary hemosiderosis, sarcoidosis and pulmonary alveolar proteinosis), Acute respiratory distress syndrome (also called, e.g., adult respiratory distress syndrome), edema, pulmonary embolism, bronchitis (e.g., viral, bacterial), bronchiectasis, atelectasis, lung abscess (caused by, e.g., *Staphylococcus aureus* or *Legionella pneumophila*), and cystic fibrosis.

#### Anti-Angiogenesis Activity

[0592] The naturally occurring balance between endogenous stimulators and inhibitors of angiogenesis is one in which inhibitory influences predominate. Rastinejad *et al.*, *Cell* 56:345-355 (1989). In those rare instances in which neovascularization occurs under normal physiological conditions, such as wound healing, organ regeneration, embryonic development, and female reproductive processes, angiogenesis is stringently regulated and spatially and temporally delimited. Under conditions of pathological angiogenesis such as that characterizing solid tumor growth, these regulatory controls fail. Unregulated angiogenesis becomes pathologic and sustains progression of many neoplastic and non-neoplastic diseases. A number of serious diseases are dominated by abnormal neovascularization including solid tumor growth and metastases, arthritis, some types of eye disorders, and psoriasis. See, e.g., reviews by Moses *et al.*, *Biotech.* 9:630-634 (1991); Folkman *et al.*, *N. Engl. J. Med.*, 333:1757-1763 (1995); Auerbach *et al.*, *J. Microvasc. Res.* 29:401-411 (1985); Folkman, *Advances in Cancer Research*, eds. Klein and Weinhouse, Academic Press, New York, pp. 175-203 (1985); Patz, *Am. J. Ophthalmol.* 94:715-743 (1982); and Folkman *et al.*, *Science* 221:719-725 (1983). In a number of pathological conditions, the process of angiogenesis contributes to the disease state. For example, significant data have accumulated which suggest that the growth of solid tumors is dependent on angiogenesis. Folkman and Klagsbrun, *Science* 235:442-447 (1987).

[0593] The present invention provides for treatment of diseases or disorders associated with neovascularization by administration of the polynucleotides and/or polypeptides of the invention, as well as agonists or antagonists of the present invention. Malignant and metastatic conditions which can be treated with the polynucleotides and polypeptides, or agonists or antagonists of the invention include, but are not limited to, malignancies, solid tumors, and cancers described herein and otherwise known in the art (for a review of such

disorders, see Fishman *et al.*, Medicine, 2d Ed., J. B. Lippincott Co., Philadelphia (1985)). Thus, the present invention provides a method of treating an angiogenesis-related disease and/or disorder, comprising administering to an individual in need thereof a therapeutically effective amount of a polynucleotide, polypeptide, antagonist and/or agonist of the invention. For example, polynucleotides, polypeptides, antagonists and/or agonists may be utilized in a variety of additional methods in order to therapeutically treat a cancer or tumor. Cancers which may be treated with polynucleotides, polypeptides, antagonists and/or agonists include, but are not limited to solid tumors, including prostate, lung, breast, ovarian, stomach, pancreas, larynx, esophagus, testes, liver, parotid, biliary tract, colon, rectum, cervix, uterus, endometrium, kidney, bladder, thyroid cancer; primary tumors and metastases; melanomas; glioblastoma; Kaposi's sarcoma; leiomyosarcoma; non-small cell lung cancer; colorectal cancer; advanced malignancies; and blood born tumors such as leukemias. For example, polynucleotides, polypeptides, antagonists and/or agonists may be delivered topically, in order to treat cancers such as skin cancer, head and neck tumors, breast tumors, and Kaposi's sarcoma.

[0594] Within yet other aspects, polynucleotides, polypeptides, antagonists and/or agonists may be utilized to treat superficial forms of bladder cancer by, for example, intravesical administration. Polynucleotides, polypeptides, antagonists and/or agonists may be delivered directly into the tumor, or near the tumor site, via injection or a catheter. Of course, as the artisan of ordinary skill will appreciate, the appropriate mode of administration will vary according to the cancer to be treated. Other modes of delivery are discussed herein.

[0595] Polynucleotides, polypeptides, antagonists and/or agonists may be useful in treating other disorders, besides cancers, which involve angiogenesis. These disorders include, but are not limited to: benign tumors, for example hemangiomas, acoustic neuromas, neurofibromas, trachomas, and pyogenic granulomas; arteriosclerotic plaques; ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, retrolental fibroplasia, rubeosis, retinoblastoma, uveitis and Pterygia (abnormal blood vessel growth) of the eye; rheumatoid arthritis; psoriasis; delayed wound healing; endometriosis; vasculogenesis; granulations; hypertrophic scars (keloids); nonunion fractures; scleroderma; trachoma; vascular adhesions; myocardial angiogenesis; coronary collaterals; cerebral collaterals; arteriovenous malformations; ischemic limb angiogenesis; Osler-Webber Syndrome; plaque



neovascularization; telangiectasia; hemophiliac joints; angiofibroma; fibromuscular dysplasia; wound granulation; Crohn's disease; and atherosclerosis.

[0596] For example, within one aspect of the present invention methods are provided for treating hypertrophic scars and keloids, comprising the step of administering a polynucleotide, polypeptide, antagonist and/or agonist of the invention to a hypertrophic scar or keloid.

[0597] Within one embodiment of the present invention polynucleotides, polypeptides, antagonists and/or agonists of the invention are directly injected into a hypertrophic scar or keloid, in order to prevent the progression of these lesions. This therapy is of particular value in the prophylactic treatment of conditions which are known to result in the development of hypertrophic scars and keloids (e.g., burns), and is preferably initiated after the proliferative phase has had time to progress (approximately 14 days after the initial injury), but before hypertrophic scar or keloid development. As noted above, the present invention also provides methods for treating neovascular diseases of the eye, including for example, corneal neovascularization, neovascular glaucoma, proliferative diabetic retinopathy, retrolental fibroplasia and macular degeneration.

[0598] Moreover, Ocular disorders associated with neovascularization which can be treated with the polynucleotides and polypeptides of the present invention (including agonists and/or antagonists) include, but are not limited to: neovascular glaucoma, diabetic retinopathy, retinoblastoma, retrolental fibroplasia, uveitis, retinopathy of prematurity macular degeneration, corneal graft neovascularization, as well as other eye inflammatory diseases, ocular tumors and diseases associated with choroidal or iris neovascularization. See, e.g., reviews by Waltman *et al.*, *Am. J. Ophthalm.* 85:704-710 (1978) and Gartner *et al.*, *Surv. Ophthalm.* 22:291-312 (1978).

[0599] Thus, within one aspect of the present invention methods are provided for treating neovascular diseases of the eye such as corneal neovascularization (including corneal graft neovascularization), comprising the step of administering to a patient a therapeutically effective amount of a compound (as described above) to the cornea, such that the formation of blood vessels is inhibited. Briefly, the cornea is a tissue which normally lacks blood vessels. In certain pathological conditions however, capillaries may extend into the cornea from the pericorneal vascular plexus of the limbus. When the cornea becomes vascularized, it also becomes clouded, resulting in a decline in the patient's visual acuity. Visual loss may

become complete if the cornea completely opacitates. A wide variety of disorders can result in corneal neovascularization, including for example, corneal infections (e.g., trachoma, herpes simplex keratitis, leishmaniasis and onchocerciasis), immunological processes (e.g., graft rejection and Stevens-Johnson's syndrome), alkali burns, trauma, inflammation (of any cause), toxic and nutritional deficiency states, and as a complication of wearing contact lenses.

[0600] Within particularly preferred embodiments of the invention, may be prepared for topical administration in saline (combined with any of the preservatives and antimicrobial agents commonly used in ocular preparations), and administered in eyedrop form. The solution or suspension may be prepared in its pure form and administered several times daily. Alternatively, anti-angiogenic compositions, prepared as described above, may also be administered directly to the cornea. Within preferred embodiments, the anti-angiogenic composition is prepared with a muco-adhesive polymer which binds to cornea. Within further embodiments, the anti-angiogenic factors or anti-angiogenic compositions may be utilized as an adjunct to conventional steroid therapy. Topical therapy may also be useful prophylactically in corneal lesions which are known to have a high probability of inducing an angiogenic response (such as chemical burns). In these instances the treatment, likely in combination with steroids, may be instituted immediately to help prevent subsequent complications.

[0601] Within other embodiments, the compounds described above may be injected directly into the corneal stroma by an ophthalmologist under microscopic guidance. The preferred site of injection may vary with the morphology of the individual lesion, but the goal of the administration would be to place the composition at the advancing front of the vasculature (i.e., interspersed between the blood vessels and the normal cornea). In most cases this would involve perilimbic corneal injection to "protect" the cornea from the advancing blood vessels. This method may also be utilized shortly after a corneal insult in order to prophylactically prevent corneal neovascularization. In this situation the material could be injected in the perilimbic cornea interspersed between the corneal lesion and its undesired potential limbic blood supply. Such methods may also be utilized in a similar fashion to prevent capillary invasion of transplanted corneas. In a sustained-release form injections might only be required 2-3 times per year. A steroid could also be added to the injection solution to reduce inflammation resulting from the injection itself.

[0602] Within another aspect of the present invention, methods are provided for treating neovascular glaucoma, comprising the step of administering to a patient a therapeutically effective amount of a polynucleotide, polypeptide, antagonist and/or agonist to the eye, such that the formation of blood vessels is inhibited. In one embodiment, the compound may be administered topically to the eye in order to treat early forms of neovascular glaucoma. Within other embodiments, the compound may be implanted by injection into the region of the anterior chamber angle. Within other embodiments, the compound may also be placed in any location such that the compound is continuously released into the aqueous humor. Within another aspect of the present invention, methods are provided for treating proliferative diabetic retinopathy, comprising the step of administering to a patient a therapeutically effective amount of a polynucleotide, polypeptide, antagonist and/or agonist to the eyes, such that the formation of blood vessels is inhibited.

[0603] Within particularly preferred embodiments of the invention, proliferative diabetic retinopathy may be treated by injection into the aqueous humor or the vitreous, in order to increase the local concentration of the polynucleotide, polypeptide, antagonist and/or agonist in the retina. Preferably, this treatment should be initiated prior to the acquisition of severe disease requiring photocoagulation.

[0604] Within another aspect of the present invention, methods are provided for treating retrolental fibroplasia, comprising the step of administering to a patient a therapeutically effective amount of a polynucleotide, polypeptide, antagonist and/or agonist to the eye, such that the formation of blood vessels is inhibited. The compound may be administered topically, via intravitreal injection and/or via intraocular implants.

[0605] Additionally, disorders which can be treated with the polynucleotides, polypeptides, agonists and/or antagonists include, but are not limited to, hemangioma, arthritis, psoriasis, angiofibroma, atherosclerotic plaques, delayed wound healing, granulations, hemophilic joints, hypertrophic scars, nonunion fractures, Osler-Weber syndrome, pyogenic granuloma, scleroderma, trachoma, and vascular adhesions.

[0606] Moreover, disorders and/or states, which can be treated, prevented, diagnosed, and/or prognosed with the the polynucleotides, polypeptides, agonists and/or antagonists of the invention include, but are not limited to, solid tumors, blood born tumors such as leukemias, tumor metastasis, Kaposi's sarcoma, benign tumors, for example hemangiomas, acoustic neuromas, neurofibromas, trachomas, and pyogenic granulomas, rheumatoid arthritis,

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psoriasis, ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, retrolental fibroplasia, rubeosis, retinoblastoma, and uveitis, delayed wound healing, endometriosis, vasculogenesis, granulations, hypertrophic scars (keloids), nonunion fractures, scleroderma, trachoma, vascular adhesions, myocardial angiogenesis, coronary collaterals, cerebral collaterals, arteriovenous malformations, ischemic limb angiogenesis, Osler-Webber Syndrome, plaque neovascularization, telangiectasia, hemophilic joints, angiofibroma fibromuscular dysplasia, wound granulation, Crohn's disease, atherosclerosis, birth control agent by preventing vascularization required for embryo implantation controlling menstruation, diseases that have angiogenesis as a pathologic consequence such as cat scratch disease (*Rochelina minialia quintosa*), ulcers (*Helicobacter pylori*), Bartonellosis and bacillary angiomatosis.

[0607] In one aspect of the birth control method, an amount of the compound sufficient to block embryo implantation is administered before or after intercourse and fertilization have occurred, thus providing an effective method of birth control, possibly a "morning after" method. Polynucleotides, polypeptides, agonists and/or antagonists may also be used in controlling menstruation or administered as either a peritoneal lavage fluid or for peritoneal implantation in the treatment of endometriosis.

[0608] Polynucleotides, polypeptides, agonists and/or antagonists of the present invention may be incorporated into surgical sutures in order to prevent stitch granulomas.

[0609] Polynucleotides, polypeptides, agonists and/or antagonists may be utilized in a wide variety of surgical procedures. For example, within one aspect of the present invention a composition (in the form of, for example, a spray or film) may be utilized to coat or spray an area prior to removal of a tumor, in order to isolate normal surrounding tissues from malignant tissue, and/or to prevent the spread of disease to surrounding tissues. Within other aspects of the present invention, compositions (e.g., in the form of a spray) may be delivered via endoscopic procedures in order to coat tumors, or inhibit angiogenesis in a desired locale. Within yet other aspects of the present invention, surgical meshes which have been coated with anti-angiogenic compositions of the present invention may be utilized in any procedure wherein a surgical mesh might be utilized. For example, within one embodiment of the invention a surgical mesh laden with an anti-angiogenic composition may be utilized during

abdominal cancer resection surgery (e.g., subsequent to colon resection) in order to provide support to the structure, and to release an amount of the anti-angiogenic factor.

[0610] Within further aspects of the present invention, methods are provided for treating tumor excision sites, comprising administering a polynucleotide, polypeptide, agonist and/or antagonist to the resection margins of a tumor subsequent to excision, such that the local recurrence of cancer and the formation of new blood vessels at the site is inhibited. Within one embodiment of the invention, the anti-angiogenic compound is administered directly to the tumor excision site (e.g., applied by swabbing, brushing or otherwise coating the resection margins of the tumor with the anti-angiogenic compound). Alternatively, the anti-angiogenic compounds may be incorporated into known surgical pastes prior to administration. Within particularly preferred embodiments of the invention, the anti-angiogenic compounds are applied after hepatic resections for malignancy, and after neurosurgical operations.

[0611] Within one aspect of the present invention, polynucleotides, polypeptides, agonists and/or antagonists may be administered to the resection margin of a wide variety of tumors, including for example, breast, colon, brain and hepatic tumors. For example, within one embodiment of the invention, anti-angiogenic compounds may be administered to the site of a neurological tumor subsequent to excision, such that the formation of new blood vessels at the site are inhibited.

[0612] The polynucleotides, polypeptides, agonists and/or antagonists of the present invention may also be administered along with other anti-angiogenic factors. Representative examples of other anti-angiogenic factors include: Anti-Invasive Factor, retinoic acid and derivatives thereof, paclitaxel, Suramin, Tissue Inhibitor of Metalloproteinase-1, Tissue Inhibitor of Metalloproteinase-2, Plasminogen Activator Inhibitor-1, Plasminogen Activator Inhibitor-2, and various forms of the lighter "d group" transition metals.

[0613] Lighter "d group" transition metals include, for example, vanadium, molybdenum, tungsten, titanium, niobium, and tantalum species. Such transition metal species may form transition metal complexes. Suitable complexes of the above-mentioned transition metal species include oxo transition metal complexes.

[0614] Representative examples of vanadium complexes include oxo vanadium complexes such as vanadate and vanadyl complexes. Suitable vanadate complexes include metavanadate and orthovanadate complexes such as, for example, ammonium metavanadate,

sodium metavanadate, and sodium orthovanadate. Suitable vanadyl complexes include, for example, vanadyl acetylacetonate and vanadyl sulfate including vanadyl sulfate hydrates such as vanadyl sulfate mono- and trihydrates.

[0615] Representative examples of tungsten and molybdenum complexes also include oxo complexes. Suitable oxo tungsten complexes include tungstate and tungsten oxide complexes. Suitable tungstate complexes include ammonium tungstate, calcium tungstate, sodium tungstate dihydrate, and tungstic acid. Suitable tungsten oxides include tungsten (IV) oxide and tungsten (VI) oxide. Suitable oxo molybdenum complexes include molybdate, molybdenum oxide, and molybdenyl complexes. Suitable molybdate complexes include ammonium molybdate and its hydrates, sodium molybdate and its hydrates, and potassium molybdate and its hydrates. Suitable molybdenum oxides include molybdenum (VI) oxide, molybdenum (VI) oxide, and molybdic acid. Suitable molybdenyl complexes include, for example, molybdenyl acetylacetonate. Other suitable tungsten and molybdenum complexes include hydroxo derivatives derived from, for example, glycerol, tartaric acid, and sugars.

[0616] A wide variety of other anti-angiogenic factors may also be utilized within the context of the present invention. Representative examples include platelet factor 4; protamine sulphate; sulphated chitin derivatives (prepared from queen crab shells), (Murata et al., *Cancer Res.* 51:22-26, 1991); Sulphated Polysaccharide Peptidoglycan Complex (SP-PG) (the function of this compound may be enhanced by the presence of steroids such as estrogen, and tamoxifen citrate); Staurosporine; modulators of matrix metabolism, including for example, proline analogs, cishydroxyproline, d,L-3,4-dehydroproline, Thiaproline, alpha,alpha-dipyridyl, aminopropionitrile fumarate; 4-propyl-5-(4-pyridinyl)-2(3H)-oxazolone; Methotrexate; Mitoxantrone; Heparin; Interferons; 2 Macroglobulin-serum; ChIMP-3 (Pavloff et al., *J. Bio. Chem.* 267:17321-17326, 1992); Chymostatin (Tomkinson et al., *Biochem J.* 286:475-480, 1992); Cyclodextrin Tetradecasulfate; Eponemycin; Camptothecin; Fumagillin (Ingber et al., *Nature* 348:555-557, 1990); Gold Sodium Thiomalate ("GST"; Matsubara and Ziff, *J. Clin. Invest.* 79:1440-1446, 1987); anticollagenase-serum; alpha2-antiplasmin (Holmes et al., *J. Biol. Chem.* 262(4):1659-1664, 1987); Bisantrone (National Cancer Institute); Lobenzarit disodium (N-(2)-carboxyphenyl-4-chloroanthronilic acid disodium or "CCA"; Takeuchi et al., *Agents Actions* 36:312-316, 1992); Thalidomide; Angostatic steroid; AGM-1470; carboxynaminolmidazole; and metalloproteinase inhibitors such as BB94.

Diseases at the Cellular Level

[0617] Diseases associated with increased cell survival or the inhibition of apoptosis that could be treated, prevented, diagnosed, and/or prognosed using polynucleotides or polypeptides, as well as antagonists or agonists of the present invention, include cancers (such as follicular lymphomas, carcinomas with p53 mutations, and hormone-dependent tumors, including, but not limited to colon cancer, cardiac tumors, pancreatic cancer, melanoma, retinoblastoma, glioblastoma, lung cancer, intestinal cancer, testicular cancer, stomach cancer, neuroblastoma, myxoma, myoma, lymphoma, endothelioma, osteoblastoma, osteoclastoma, osteosarcoma, chondrosarcoma, adenoma, breast cancer, prostate cancer, Kaposi's sarcoma and ovarian cancer); autoimmune disorders (such as, multiple sclerosis, Sjogren's syndrome, Hashimoto's thyroiditis, biliary cirrhosis, Behcet's disease, Crohn's disease, polymyositis, systemic lupus erythematosus and immune-related glomerulonephritis and rheumatoid arthritis) and viral infections (such as herpes viruses, pox viruses and adenoviruses), inflammation, graft v. host disease, acute graft rejection, and chronic graft rejection.

[0618] In preferred embodiments, polynucleotides, polypeptides, and/or antagonists of the invention are used to inhibit growth, progression, and/or metastasis of cancers, in particular those listed above.

[0619] Additional diseases or conditions associated with increased cell survival that could be treated or detected by polynucleotides or polypeptides, or agonists or antagonists of the present invention include, but are not limited to, progression, and/or metastases of malignancies and related disorders such as leukemia (including acute leukemias (e.g., acute lymphocytic leukemia, acute myelocytic leukemia (including myeloblastic, promyelocytic, myelomonocytic, monocytic, and erythroleukemia)) and chronic leukemias (e.g., chronic myelocytic (granulocytic) leukemia and chronic lymphocytic leukemia)), polycythemia vera, lymphomas (e.g., Hodgkin's disease and non-Hodgkin's disease), multiple myeloma, Waldenstrom's macroglobulinemia, heavy chain disease, and solid tumors including, but not limited to, sarcomas and carcinomas such as fibrosarcoma, myxosarcoma, liposarcoma, chondrosarcoma, osteogenic sarcoma, chordoma, angiosarcoma, endotheliosarcoma, lymphangiosarcoma, lymphangioendotheliosarcoma, synovioma, mesothelioma, Ewing's tumor, leiomyosarcoma, rhabdomyosarcoma, colon carcinoma, pancreatic cancer, breast



cancer, ovarian cancer, prostate cancer, squamous cell carcinoma, basal cell carcinoma, adenocarcinoma, sweat gland carcinoma, sebaceous gland carcinoma, papillary carcinoma, papillary adenocarcinomas, cystadenocarcinoma, medullary carcinoma, bronchogenic carcinoma, renal cell carcinoma, hepatoma, bile duct carcinoma, choriocarcinoma, seminoma, embryonal carcinoma, Wilm's tumor, cervical cancer, testicular tumor, lung carcinoma, small cell lung carcinoma, bladder carcinoma, epithelial carcinoma, glioma, astrocytoma, medulloblastoma, craniopharyngioma, ependymoma, pinealoma, hemangioblastoma, acoustic neuroma, oligodendroglioma, menangioma, melanoma, neuroblastoma, and retinoblastoma.

[0620] Diseases associated with increased apoptosis that could be treated, prevented, diagnosed, and/or prognosed using polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, include, but are not limited to, AIDS; neurodegenerative disorders (such as Alzheimer's disease, Parkinson's disease, Amyotrophic lateral sclerosis, Retinitis pigmentosa, Cerebellar degeneration and brain tumor or prior associated disease); autoimmune disorders (such as, multiple sclerosis, Sjogren's syndrome, Hashimoto's thyroiditis, biliary cirrhosis, Behcet's disease, Crohn's disease, polymyositis, systemic lupus erythematosus and immune-related glomerulonephritis and rheumatoid arthritis) myelodysplastic syndromes (such as aplastic anemia), graft v. host disease, ischemic injury (such as that caused by myocardial infarction, stroke and reperfusion injury), liver injury (e.g., hepatitis related liver injury, ischemia/reperfusion injury, cholestasis (bile duct injury) and liver cancer); toxin-induced liver disease (such as that caused by alcohol), septic shock, cachexia and anorexia.

#### Wound Healing and Epithelial Cell Proliferation

[0621] In accordance with yet a further aspect of the present invention, there is provided a process for utilizing polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, for therapeutic purposes, for example, to stimulate epithelial cell proliferation and basal keratinocytes for the purpose of wound healing, and to stimulate hair follicle production and healing of dermal wounds. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may be clinically useful in stimulating wound healing including surgical wounds, excisional wounds, deep wounds involving damage of the dermis and epidermis, eye tissue wounds, dental tissue wounds, oral cavity

wounds, diabetic ulcers, dermal ulcers, cubitus ulcers, arterial ulcers, venous stasis ulcers, burns resulting from heat exposure or chemicals, and other abnormal wound healing conditions such as uremia, malnutrition, vitamin deficiencies and complications associated with systemic treatment with steroids, radiation therapy and antineoplastic drugs and antimetabolites. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to promote dermal reestablishment subsequent to dermal loss

[0622] Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to increase the adherence of skin grafts to a wound bed and to stimulate re-epithelialization from the wound bed. The following are types of grafts that polynucleotides or polypeptides, agonists or antagonists of the present invention, could be used to increase adherence to a wound bed: autografts, artificial skin, allografts, autodermic graft, autoepidermic grafts, avacular grafts, Blair-Brown grafts, bone graft, brephoplastic grafts, cutis graft, delayed graft, dermic graft, epidermic graft, fascia graft, full thickness graft, heterologous graft, xenograft, homologous graft, hyperplastic graft, lamellar graft, mesh graft, mucosal graft, Ollier-Thiersch graft, omentoplastic graft, patch graft, pedicle graft, penetrating graft, split skin graft, thick split graft. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, can be used to promote skin strength and to improve the appearance of aged skin.

[0623] It is believed that polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, will also produce changes in hepatocyte proliferation, and epithelial cell proliferation in the lung, breast, pancreas, stomach, small intestine, and large intestine. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could promote proliferation of epithelial cells such as sebocytes, hair follicles, hepatocytes, type II pneumocytes, mucin-producing goblet cells, and other epithelial cells and their progenitors contained within the skin, lung, liver, and gastrointestinal tract. Polynucleotides or polypeptides, agonists or antagonists of the present invention, may promote proliferation of endothelial cells, keratinocytes, and basal keratinocytes.

[0624] Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could also be used to reduce the side effects of gut toxicity that result from radiation, chemotherapy treatments or viral infections. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may have a cytoprotective effect on

the small intestine mucosa. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may also stimulate healing of mucositis (mouth ulcers) that result from chemotherapy and viral infections.

[0625] Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could further be used in full regeneration of skin in full and partial thickness skin defects, including burns, (i.e., repopulation of hair follicles, sweat glands, and sebaceous glands), treatment of other skin defects such as psoriasis. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to treat epidermolysis bullosa, a defect in adherence of the epidermis to the underlying dermis which results in frequent, open and painful blisters by accelerating reepithelialization of these lesions. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could also be used to treat gastric and duodenal ulcers and help heal by scar formation of the mucosal lining and regeneration of glandular mucosa and duodenal mucosal lining more rapidly. Inflammatory bowel diseases, such as Crohn's disease and ulcerative colitis, are diseases which result in destruction of the mucosal surface of the small or large intestine, respectively. Thus, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to promote the resurfacing of the mucosal surface to aid more rapid healing and to prevent progression of inflammatory bowel disease. Treatment with polynucleotides or polypeptides, agonists or antagonists of the present invention, is expected to have a significant effect on the production of mucus throughout the gastrointestinal tract and could be used to protect the intestinal mucosa from injurious substances that are ingested or following surgery. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to treat diseases associated with the under expression.

[0626] Moreover, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to prevent and heal damage to the lungs due to various pathological states. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, which could stimulate proliferation and differentiation and promote the repair of alveoli and bronchiolar epithelium to prevent or treat acute or chronic lung damage. For example, emphysema, which results in the progressive loss of alveoli, and inhalation injuries, i.e., resulting from smoke inhalation and burns, that cause necrosis of the bronchiolar epithelium and alveoli could be effectively treated using polynucleotides or

polypeptides, agonists or antagonists of the present invention. Also, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to stimulate the proliferation of and differentiation of type II pneumocytes, which may help treat or prevent disease such as hyaline membrane diseases, such as infant respiratory distress syndrome and bronchopulmonary dysplasia, in premature infants.

[0627] Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could stimulate the proliferation and differentiation of hepatocytes and, thus, could be used to alleviate or treat liver diseases and pathologies such as fulminant liver failure caused by cirrhosis, liver damage caused by viral hepatitis and toxic substances (i.e., acetaminophen, carbon tetrachloride and other hepatotoxins known in the art).

[0628] In addition, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to treat or prevent the onset of diabetes mellitus. In patients with newly diagnosed Types I and II diabetes, where some islet cell function remains, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to maintain the islet function so as to alleviate, delay or prevent permanent manifestation of the disease. Also, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used as an auxiliary in islet cell transplantation to improve or promote islet cell function.

#### Neural Activity and Neurological Diseases

[0629] The polynucleotides, polypeptides and agonists or antagonists of the invention may be used for the diagnosis and/or treatment of diseases, disorders, damage or injury of the brain and/or nervous system. Nervous system disorders that can be treated with the compositions of the invention (e.g., polypeptides, polynucleotides, and/or agonists or antagonists), include, but are not limited to, nervous system injuries, and diseases or disorders which result in either a disconnection of axons, a diminution or degeneration of neurons, or demyelination. Nervous system lesions which may be treated in a patient (including human and non-human mammalian patients) according to the methods of the invention, include but are not limited to, the following lesions of either the central (including spinal cord, brain) or peripheral nervous systems: (1) ischemic lesions, in which a lack of oxygen in a portion of the nervous system results in neuronal injury or death, including cerebral infarction or ischemia, or spinal cord infarction or ischemia; (2) traumatic lesions,

including lesions caused by physical injury or associated with surgery, for example, lesions which sever a portion of the nervous system, or compression injuries; (3) malignant lesions, in which a portion of the nervous system is destroyed or injured by malignant tissue which is either a nervous system associated malignancy or a malignancy derived from non-nervous system tissue; (4) infectious lesions, in which a portion of the nervous system is destroyed or injured as a result of infection, for example, by an abscess or associated with infection by human immunodeficiency virus, herpes zoster, or herpes simplex virus or with Lyme disease, tuberculosis, or syphilis; (5) degenerative lesions, in which a portion of the nervous system is destroyed or injured as a result of a degenerative process including but not limited to, degeneration associated with Parkinson's disease, Alzheimer's disease, Huntington's chorea, or amyotrophic lateral sclerosis (ALS); (6) lesions associated with nutritional diseases or disorders, in which a portion of the nervous system is destroyed or injured by a nutritional disorder or disorder of metabolism including, but not limited to, vitamin B12 deficiency, folic acid deficiency, Wernicke disease, tobacco-alcohol amblyopia, Marchiafava-Bignami disease (primary degeneration of the corpus callosum), and alcoholic cerebellar degeneration; (7) neurological lesions associated with systemic diseases including, but not limited to, diabetes (diabetic neuropathy, Bell's palsy), systemic lupus erythematosus, carcinoma, or sarcoidosis; (8) lesions caused by toxic substances including alcohol, lead, or particular neurotoxins; and (9) demyelinated lesions in which a portion of the nervous system is destroyed or injured by a demyelinating disease including, but not limited to, multiple sclerosis, human immunodeficiency virus-associated myelopathy, transverse myelopathy or various etiologies, progressive multifocal leukoencephalopathy, and central pontine myelinolysis.

[0630] In one embodiment, the polypeptides, polynucleotides, or agonists or antagonists of the invention are used to protect neural cells from the damaging effects of hypoxia. In a further preferred embodiment, the polypeptides, polynucleotides, or agonists or antagonists of the invention are used to protect neural cells from the damaging effects of cerebral hypoxia. According to this embodiment, the compositions of the invention are used to treat or prevent neural cell injury associated with cerebral hypoxia. In one non-exclusive aspect of this embodiment, the polypeptides, polynucleotides, or agonists or antagonists of the invention, are used to treat or prevent neural cell injury associated with cerebral ischemia. In another non-exclusive aspect of this embodiment, the polypeptides, polynucleotides, or

agonists or antagonists of the invention are used to treat or prevent neural cell injury associated with cerebral infarction.

[0631] In another preferred embodiment, the polypeptides, polynucleotides, or agonists or antagonists of the invention are used to treat or prevent neural cell injury associated with a stroke. In a specific embodiment, the polypeptides, polynucleotides, or agonists or antagonists of the invention are used to treat or prevent cerebral neural cell injury associated with a stroke.

[0632] In another preferred embodiment, the polypeptides, polynucleotides, or agonists or antagonists of the invention are used to treat or prevent neural cell injury associated with a heart attack. In a specific embodiment, the polypeptides, polynucleotides, or agonists or antagonists of the invention are used to treat or prevent cerebral neural cell injury associated with a heart attack.

[0633] The compositions of the invention which are useful for treating or preventing a nervous system disorder may be selected by testing for biological activity in promoting the survival or differentiation of neurons. For example, and not by way of limitation, compositions of the invention which elicit any of the following effects may be useful according to the invention: (1) increased survival time of neurons in culture either in the presence or absence of hypoxia or hypoxic conditions; (2) increased sprouting of neurons in culture or *in vivo*; (3) increased production of a neuron-associated molecule in culture or *in vivo*; e.g., choline acetyltransferase or acetylcholinesterase with respect to motor neurons; or (4) decreased symptoms of neuron dysfunction *in vivo*. Such effects may be measured by any method known in the art. In preferred, non-limiting embodiments, increased survival of neurons may routinely be measured using a method set forth herein or otherwise known in the art, such as, for example, in Zhang *et al.*, *Proc Natl Acad Sci USA* 97:3637-42 (2000) or in Arakawa *et al.*, *J. Neurosci.*, 10:3507-15 (1990); increased sprouting of neurons may be detected by methods known in the art, such as, for example, the methods set forth in Pestronk *et al.*, *Exp. Neurol.*, 70:65-82 (1980), or Brown *et al.*, *Ann. Rev. Neurosci.*, 4:17-42 (1981); increased production of neuron-associated molecules may be measured by bioassay, enzymatic assay, antibody binding, Northern blot assay, etc., using techniques known in the art and depending on the molecule to be measured; and motor neuron dysfunction may be measured by assessing the physical manifestation of motor neuron disorder, e.g., weakness, motor neuron conduction velocity, or functional disability.

[0634] In specific embodiments, motor neuron disorders that may be treated according to the invention include, but are not limited to, disorders such as infarction, infection, exposure to toxin, trauma, surgical damage, degenerative disease or malignancy that may affect motor neurons as well as other components of the nervous system, as well as disorders that selectively affect neurons such as amyotrophic lateral sclerosis, and including, but not limited to, progressive spinal muscular atrophy, progressive bulbar palsy, primary lateral sclerosis, infantile and juvenile muscular atrophy, progressive bulbar paralysis of childhood (Fazio-Londe syndrome), poliomyelitis and the post polio syndrome, and Hereditary Motor Sensory Neuropathy (Charcot-Marie-Tooth Disease).

[0635] Further, polypeptides or polynucleotides of the invention may play a role in neuronal survival; synapse formation; conductance; neural differentiation, etc. Thus, compositions of the invention (including polynucleotides, polypeptides, and agonists or antagonists) may be used to diagnose and/or treat or prevent diseases or disorders associated with these roles, including, but not limited to, learning and/or cognition disorders. The compositions of the invention may also be useful in the treatment or prevention of neurodegenerative disease states and/or behavioural disorders. Such neurodegenerative disease states and/or behavioral disorders include, but are not limited to, Alzheimer's Disease, Parkinson's Disease, Huntington's Disease, Tourette Syndrome, schizophrenia, mania, dementia, paranoia, obsessive compulsive disorder, panic disorder, learning disabilities, ALS, psychoses, autism, and altered behaviors, including disorders in feeding, sleep patterns, balance, and perception. In addition, compositions of the invention may also play a role in the treatment, prevention and/or detection of developmental disorders associated with the developing embryo, or sexually-linked disorders.

[0636] Additionally, polypeptides, polynucleotides and/or agonists or antagonists of the invention, may be useful in protecting neural cells from diseases, damage, disorders, or injury, associated with cerebrovascular disorders including, but not limited to, carotid artery diseases (e.g., carotid artery thrombosis, carotid stenosis, or Moyamoya Disease), cerebral amyloid angiopathy, cerebral aneurysm, cerebral anoxia, cerebral arteriosclerosis, cerebral arteriovenous malformations, cerebral artery diseases, cerebral embolism and thrombosis (e.g., carotid artery thrombosis, sinus thrombosis, or Wallenberg's Syndrome), cerebral hemorrhage (e.g., epidural or subdural hematoma, or subarachnoid hemorrhage), cerebral infarction, cerebral ischemia (e.g., transient cerebral ischemia, Subclavian Steal Syndrome, or

vertebrobasilar insufficiency), vascular dementia (e.g., multi-infarct), leukomalacia, periventricular, and vascular headache (e.g., cluster headache or migraines).

[0637] In accordance with yet a further aspect of the present invention, there is provided a process for utilizing polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, for therapeutic purposes, for example, to stimulate neurological cell proliferation and/or differentiation. Therefore, polynucleotides, polypeptides, agonists and/or antagonists of the invention may be used to treat and/or detect neurologic diseases. Moreover, polynucleotides or polypeptides, or agonists or antagonists of the invention, can be used as a marker or detector of a particular nervous system disease or disorder.

[0638] Examples of neurologic diseases which can be treated or detected with polynucleotides, polypeptides, agonists, and/or antagonists of the present invention include brain diseases, such as metabolic brain diseases which includes phenylketonuria such as maternal phenylketonuria, pyruvate carboxylase deficiency, pyruvate dehydrogenase complex deficiency, Wernicke's Encephalopathy, brain edema, brain neoplasms such as cerebellar neoplasms which include infratentorial neoplasms, cerebral ventricle neoplasms such as choroid plexus neoplasms, hypothalamic neoplasms, supratentorial neoplasms, canavan disease, cerebellar diseases such as cerebellar ataxia which include spinocerebellar degeneration such as ataxia telangiectasia, cerebellar dyssynergia, Friederich's Ataxia, Machado-Joseph Disease, olivopontocerebellar atrophy, cerebellar neoplasms such as infratentorial neoplasms, diffuse cerebral sclerosis such as encephalitis periaxialis, globoid cell leukodystrophy, metachromatic leukodystrophy and subacute sclerosing panencephalitis.

[0639] Additional neurologic diseases which can be treated or detected with polynucleotides, polypeptides, agonists, and/or antagonists of the present invention include cerebrovascular disorders (such as carotid artery diseases which include carotid artery thrombosis, carotid stenosis and Moyamoya Disease), cerebral amyloid angiopathy, cerebral aneurysm, cerebral anoxia, cerebral arteriosclerosis, cerebral arteriovenous malformations, cerebral artery diseases, cerebral embolism and thrombosis such as carotid artery thrombosis, sinus thrombosis and Wallenberg's Syndrome, cerebral hemorrhage such as epidural hematoma, subdural hematoma and subarachnoid hemorrhage, cerebral infarction, cerebral ischemia such as transient cerebral ischemia, Subclavian Steal Syndrome and vertebrobasilar insufficiency, vascular dementia such as multi-infarct dementia, periventricular leukomalacia, vascular headache such as cluster headache and migraine.



[0640] Additional neurologic diseases which can be treated or detected with polynucleotides, polypeptides, agonists, and/or antagonists of the present invention include dementia such as AIDS Dementia Complex, presenile dementia such as Alzheimer's Disease and Creutzfeldt-Jakob Syndrome, senile dementia such as Alzheimer's Disease and progressive supranuclear palsy, vascular dementia such as multi-infarct dementia, encephalitis which include encephalitis periaxialis, viral encephalitis such as epidemic encephalitis, Japanese Encephalitis, St. Louis Encephalitis, tick-borne encephalitis and West Nile Fever, acute disseminated encephalomyelitis, meningoencephalitis such as uveomeningoencephalitic syndrome, Postencephalitic Parkinson Disease and subacute sclerosing panencephalitis, encephalomalacia such as periventricular leukomalacia, epilepsy such as generalized epilepsy which includes infantile spasms, absence epilepsy, myoclonic epilepsy which includes MERRF Syndrome, tonic-clonic epilepsy, partial epilepsy such as complex partial epilepsy, frontal lobe epilepsy and temporal lobe epilepsy, post-traumatic epilepsy, status epilepticus such as Epilepsia Partialis Continua, and Hallervorden-Spatz Syndrome.

[0641] : Additional neurologic diseases which can be treated or detected with polynucleotides, polypeptides, agonists, and/or antagonists of the present invention include hydrocephalus such as Dandy-Walker Syndrome and normal pressure hydrocephalus, hypothalamic diseases such as hypothalamic neoplasms, cerebral malaria, narcolepsy which includes cataplexy, bulbar poliomyelitis, cerebri pseudotumor, Rett Syndrome, Reye's Syndrome, thalamic diseases, cerebral toxoplasmosis, intracranial tuberculoma and Zellweger Syndrome, central nervous system infections such as AIDS Dementia Complex, Brain Abscess, subdural empyema, encephalomyelitis such as Equine Encephalomyelitis, Venezuelan Equine Encephalomyelitis, Necrotizing Hemorrhagic Encephalomyelitis, Visna, and cerebral malaria.

[0642] Additional neurologic diseases which can be treated or detected with polynucleotides, polypeptides, agonists, and/or antagonists of the present invention include meningitis such as arachnoiditis, aseptic meningitis such as viral meningitis which includes lymphocytic choriomeningitis, Bacterial meningitis which includes Haemophilus Meningitis, Listeria Meningitis, Meningococcal Meningitis such as Waterhouse-Friderichsen Syndrome, Pneumococcal Meningitis and meningeal tuberculosis, fungal meningitis such as Cryptococcal Meningitis, subdural effusion, meningoencephalitis such as

uvemeningoencephalitic syndrome, myelitis such as transverse myelitis, neurosyphilis such as tabes dorsalis, poliomyelitis which includes bulbar poliomyelitis and postpoliomyelitis syndrome, prion diseases (such as Creutzfeldt-Jakob Syndrome, Bovine Spongiform Encephalopathy, Gerstmann-Straussler Syndrome, Kuru, Scrapie), and cerebral toxoplasmosis.

[0643] Additional neurologic diseases which can be treated or detected with polynucleotides, polypeptides, agonists, and/or antagonists of the present invention include central nervous system neoplasms such as brain neoplasms that include cerebellar neoplasms such as infratentorial neoplasms, cerebral ventricle neoplasms such as choroid plexus neoplasms, hypothalamic neoplasms and supratentorial neoplasms, meningeal neoplasms, spinal cord neoplasms which include epidural neoplasms, demyelinating diseases such as Canavan Diseases, diffuse cerebral scleritis which includes adrenoleukodystrophy, encephalitis periaxialis, globoid cell leukodystrophy, diffuse cerebral sclerosis such as metachromatic leukodystrophy, allergic encephalomyelitis, necrotizing hemorrhagic encephalomyelitis, progressive multifocal leukoencephalopathy, multiple sclerosis, central pontine myelinolysis, transverse myelitis, neuromyelitis optica, Scrapie, Swayback, Chronic Fatigue Syndrome, Visna, High Pressure Nervous Syndrome, Meningism, spinal cord diseases such as amyotonia congenita, amyotrophic lateral sclerosis, spinal muscular atrophy such as Werdnig-Hoffmann Disease, spinal cord compression, spinal cord neoplasms such as epidural neoplasms, syringomyelia, Tabes Dorsalis, Stiff-Man Syndrome, mental retardation such as Angelman Syndrome, Cri-du-Chat Syndrome, De Lange's Syndrome, Down Syndrome, Gangliosidoses such as gangliosidoses G(M1), Sandhoff Disease, Tay-Sachs Disease, Hartnup Disease, homocystinuria, Laurence-Moon- Biedl Syndrome, Lesch-Nyhan Syndrome, Maple Syrup Urine Disease, mucopolipidosis such as fucosidosis, neuronal ceroid-lipofuscinosis, oculocerebrorenal syndrome, phenylketonuria such as maternal phenylketonuria, Prader-Willi Syndrome, Rett Syndrome, Rubinstein-Taybi Syndrome, Tuberous Sclerosis, WAGR Syndrome, nervous system abnormalities such as holoprosencephaly, neural tube defects such as anencephaly which includes hydrangencephaly, Arnold-Chairi Deformity, encephalocele, meningocele, meningomyelocele, spinal dysraphism such as spina bifida cystica and spina bifida occulta.

[0644] Additional neurologic diseases which can be treated or detected with polynucleotides, polypeptides, agonists, and/or antagonists of the present invention include

hereditary motor and sensory neuropathies which include Charcot-Marie Disease, Hereditary optic atrophy, Refsum's Disease, hereditary spastic paraplegia, Werdnig-Hoffmann Disease, Hereditary Sensory and Autonomic Neuropathies such as Congenital Analgesia and Familial Dysautonomia, Neurologic manifestations (such as agnosia that include Gerstmann's Syndrome, Amnesia such as retrograde amnesia, apraxia, neurogenic bladder, cataplexy, communicative disorders such as hearing disorders that includes deafness, partial hearing loss, loudness recruitment and tinnitus, language disorders such as aphasia which include agraphia, anomia, broca aphasia, and Wernicke Aphasia, Dyslexia such as Acquired Dyslexia, language development disorders, speech disorders such as aphasia which includes anomia, broca aphasia and Wernicke Aphasia, articulation disorders, communicative disorders such as speech disorders which include dysarthria, echolalia, mutism and stuttering, voice disorders such as aphonia and hoarseness, decerebrate state, delirium, fasciculation, hallucinations, meningism, movement disorders such as angelman syndrome, ataxia, athetosis, chorea, dystonia, hypokinesia, muscle hypotonia, myoclonus, tic, torticollis and tremor, muscle hypertonia such as muscle rigidity such as stiff-man syndrome, muscle spasticity, paralysis such as facial paralysis which includes Herpes Zoster Oticus, Gastroparesis, Hemiplegia, ophthalmoplegia such as diplopia, Duane's Syndrome, Horner's Syndrome, Chronic progressive external ophthalmoplegia such as Kearns Syndrome, Bulbar Paralysis, Tropical Spastic Paraparesis, Paraplegia such as Brown-Sequard Syndrome, quadriplegia, respiratory paralysis and vocal cord paralysis, paresis, phantom limb, taste disorders such as ageusia and dysgeusia, vision disorders such as amblyopia, blindness, color vision defects, diplopia, hemianopsia, scotoma and subnormal vision, sleep disorders such as hypersomnia which includes Kleine-Levin Syndrome, insomnia, and somnambulism, spasm such as trismus, unconsciousness such as coma, persistent vegetative state and syncope and vertigo, neuromuscular diseases such as amyotonia congenita, amyotrophic lateral sclerosis, Lambert-Eaton Myasthenic Syndrome, motor neuron disease, muscular atrophy such as spinal muscular atrophy, Charcot-Marie Disease and Werdnig-Hoffmann Disease, Postpoliomyelitis Syndrome, Muscular Dystrophy, Myasthenia Gravis, Myotonia Atrophica, Myotonia Confenita, Nemaline Myopathy, Familial Periodic Paralysis, Multiplex Paramyoclonus, Tropical Spastic Paraparesis and Stiff-Man Syndrome, peripheral nervous system diseases such as acrodynia, amyloid neuropathies, autonomic nervous system diseases such as Adie's Syndrome, Barre-Lieou Syndrome, Familial Dysautonomia, Horner's

Syndrome, Reflex Sympathetic Dystrophy and Shy-Drager Syndrome, Cranial Nerve Diseases such as Acoustic Nerve Diseases such as Acoustic Neuroma which includes Neurofibromatosis 2, Facial Nerve Diseases such as Facial Neuralgia, Melkersson-Rosenthal Syndrome, ocular motility disorders which includes amblyopia, nystagmus, oculomotor nerve paralysis, ophthalmoplegia such as Duane's Syndrome, Horner's Syndrome, Chronic Progressive External Ophthalmoplegia which includes Kearns Syndrome, Strabismus such as Esotropia and Exotropia, Oculomotor Nerve Paralysis, Optic Nerve Diseases such as Optic Atrophy which includes Hereditary Optic Atrophy, Optic Disk Drusen, Optic Neuritis such as Neuromyelitis Optica, Papilledema, Trigeminal Neuralgia, Vocal Cord Paralysis, Demyelinating Diseases such as Neuromyelitis Optica and Swayback, and Diabetic neuropathies such as diabetic foot.

[0645] Additional neurologic diseases which can be treated or detected with polynucleotides, polypeptides, agonists, and/or antagonists of the present invention include nerve compression syndromes such as carpal tunnel syndrome, tarsal tunnel syndrome, thoracic outlet syndrome such as cervical rib syndrome, ulnar nerve compression syndrome, neuralgia such as causalgia, cervico-brachial neuralgia, facial neuralgia and trigeminal neuralgia, neuritis such as experimental allergic neuritis, optic neuritis, polyneuritis, polyradiculoneuritis and radiculities such as polyradiculitis, hereditary motor and sensory neuropathies such as Charcot-Marie Disease, Hereditary Optic Atrophy, Refsum's Disease, Hereditary Spastic Paraplegia and Werdnig-Hoffmann Disease, Hereditary Sensory and Autonomic Neuropathies which include Congenital Analgesia and Familial Dysautonomia, POEMS Syndrome, Sciatica, Gustatory Sweating and Tetany).

#### Endocrine Disorders

[0646] Polynucleotides or polypeptides, or agonists or antagonists of the present invention, may be used to treat, prevent, diagnose, and/or prognose disorders and/or diseases related to hormone imbalance, and/or disorders or diseases of the endocrine system.

[0647] Hormones secreted by the glands of the endocrine system control physical growth, sexual function, metabolism, and other functions. Disorders may be classified in two ways: disturbances in the production of hormones, and the inability of tissues to respond to hormones. The etiology of these hormone imbalance or endocrine system diseases, disorders

or conditions may be genetic, somatic, such as cancer and some autoimmune diseases, acquired (e.g., by chemotherapy, injury or toxins), or infectious. Moreover, polynucleotides, polypeptides, antibodies, and/or agonists or antagonists of the present invention can be used as a marker or detector of a particular disease or disorder related to the endocrine system and/or hormone imbalance.

[0648] Endocrine system and/or hormone imbalance and/or diseases encompass disorders of uterine motility including, but not limited to: complications with pregnancy and labor (e.g., pre-term labor, post-term pregnancy, spontaneous abortion, and slow or stopped labor); and disorders and/or diseases of the menstrual cycle (e.g., dysmenorrhea and endometriosis).

[0649] Endocrine system and/or hormone imbalance disorders and/or diseases include disorders and/or diseases of the pancreas, such as, for example, diabetes mellitus, diabetes insipidus, congenital pancreatic agenesis, pheochromocytoma--islet cell tumor syndrome; disorders and/or diseases of the adrenal glands such as, for example, Addison's Disease, corticosteroid deficiency, virilizing disease, hirsutism, Cushing's Syndrome, hyperaldosteronism, pheochromocytoma; disorders and/or diseases of the pituitary gland, such as, for example, hyperpituitarism, hypopituitarism, pituitary dwarfism, pituitary adenoma, panhypopituitarism, acromegaly, gigantism; disorders and/or diseases of the thyroid, including but not limited to, hyperthyroidism, hypothyroidism, Plummer's disease, Graves' disease (toxic diffuse goiter), toxic nodular goiter, thyroiditis (Hashimoto's thyroiditis, subacute granulomatous thyroiditis, and silent lymphocytic thyroiditis), Pendred's syndrome, myxedema, cretinism, thyrotoxicosis, thyroid hormone coupling defect, thymic aplasia, Hurthle cell tumours of the thyroid, thyroid cancer, thyroid carcinoma, Medullary thyroid carcinoma; disorders and/or diseases of the parathyroid, such as, for example, hyperparathyroidism, hypoparathyroidism; disorders and/or diseases of the hypothalamus.

[0650] In addition, endocrine system and/or hormone imbalance disorders and/or diseases may also include disorders and/or diseases of the testes or ovaries, including cancer. Other disorders and/or diseases of the testes or ovaries further include, for example, ovarian cancer, polycystic ovary syndrome, Klinefelter's syndrome, vanishing testes syndrome (bilateral anorchia), congenital absence of Leydig's cells, cryptorchidism, Noonan's syndrome, myotonic dystrophy, capillary haemangioma of the testis (benign), neoplasias of the testis and neo-testis.

[0651] Moreover, endocrine system and/or hormone imbalance disorders and/or diseases may also include disorders and/or diseases such as, for example, polyglandular deficiency syndromes, pheochromocytoma, neuroblastoma, multiple Endocrine neoplasia, and disorders and/or cancers of endocrine tissues.

[0652] In another embodiment, a polypeptide of the invention, or polynucleotides, antibodies, agonists, or antagonists corresponding to that polypeptide, may be used to diagnose, prognose, prevent, and/or treat endocrine diseases and/or disorders associated with the tissue(s) in which the polypeptide of the invention is expressed, including one, two, three, four, five, or more tissues disclosed in Table 1, column 8 (Tissue Distribution Library Code).

#### Reproductive System Disorders

[0653] The polynucleotides or polypeptides, or agonists or antagonists of the invention may be used for the diagnosis, treatment, or prevention of diseases and/or disorders of the reproductive system. Reproductive system disorders that can be treated by the compositions of the invention, include, but are not limited to, reproductive system injuries, infections, neoplastic disorders, congenital defects, and diseases or disorders which result in infertility, complications with pregnancy, labor, or parturition, and postpartum difficulties.

[0654] Reproductive system disorders and/or diseases include diseases and/or disorders of the testes, including testicular atrophy, testicular feminization, cryptorchism (unilateral and bilateral), anorchia, ectopic testis, epididymitis and orchitis (typically resulting from infections such as, for example, gonorrhea, mumps, tuberculosis, and syphilis), testicular torsion, vasitis nodosa, germ cell tumors (e.g., seminomas, embryonal cell carcinomas, teratocarcinomas, choriocarcinomas, yolk sac tumors, and teratomas), stromal tumors (e.g., Leydig cell tumors), hydrocele, hematocele, varicocele, spermatocele, inguinal hernia, and disorders of sperm production (e.g., immotile cilia syndrome, aspermia, asthenozoospermia, azoospermia, oligospermia, and teratozoospermia).

[0655] Reproductive system disorders also include disorders of the prostate gland, such as acute non-bacterial prostatitis, chronic non-bacterial prostatitis, acute bacterial prostatitis, chronic bacterial prostatitis, prostatodystonia, prostatosis, granulomatous prostatitis, malacoplakia, benign prostatic hypertrophy or hyperplasia, and prostate neoplastic disorders,

including adenocarcinomas, transitional cell carcinomas, ductal carcinomas, and squamous cell carcinomas.

[0656] Additionally, the compositions of the invention may be useful in the diagnosis, treatment, and/or prevention of disorders or diseases of the penis and urethra, including inflammatory disorders, such as balanoposthitis, balanitis xerotica obliterans, phimosis, paraphimosis, syphilis, herpes simplex virus, gonorrhea, non-gonococcal urethritis, chlamydia, mycoplasma, trichomonas, HIV, AIDS, Reiter's syndrome, condyloma acuminatum, condyloma latum, and pearly penile papules; urethral abnormalities, such as hypospadias, epispadias, and phimosis; premalignant lesions, including Erythroplasia of Queyrat, Bowen's disease, Bowenoid papulosis, giant condyloma of Buscke-Lowenstein, and verrucous carcinoma; penile cancers, including squamous cell carcinomas, carcinoma in situ, verrucous carcinoma, and disseminated penile carcinoma; urethral neoplastic disorders, including penile urethral carcinoma, bulbomembranous urethral carcinoma, and prostatic urethral carcinoma; and erectile disorders, such as priapism, Peyronie's disease, erectile dysfunction, and impotence.

[0657] Moreover, diseases and/or disorders of the vas deferens include vasculitis and CBAVD (congenital bilateral absence of the vas deferens); additionally, the polynucleotides, polypeptides, and agonists or antagonists of the present invention may be used in the diagnosis, treatment, and/or prevention of diseases and/or disorders of the seminal vesicles, including hydatid disease, congenital chloride diarrhea, and polycystic kidney disease.

[0658] Other disorders and/or diseases of the male reproductive system include, for example, Klinefelter's syndrome, Young's syndrome, premature ejaculation, diabetes mellitus, cystic fibrosis, Kartagener's syndrome, high fever, multiple sclerosis, and gynecomastia.

[0659] Further, the polynucleotides, polypeptides, and agonists or antagonists of the present invention may be used in the diagnosis, treatment, and/or prevention of diseases and/or disorders of the vagina and vulva, including bacterial vaginosis, candida vaginitis, herpes simplex virus, chancroid, granuloma inguinale, lymphogranuloma venereum, scabies, human papillomavirus, vaginal trauma, vulvar trauma, adenosis, chlamydia vaginitis, gonorrhea, trichomonas vaginitis, condyloma acuminatum, syphilis, molluscum contagiosum, atrophic vaginitis, Paget's disease, lichen sclerosus, lichen planus, vulvodynia, toxic shock syndrome, vaginismus, vulvovaginitis, vulvar vestibulitis, and neoplastic disorders, such as

squamous cell hyperplasia, clear cell carcinoma, basal cell carcinoma, melanomas, cancer of Bartholin's gland, and vulvar intraepithelial neoplasia.

[0660] Disorders and/or diseases of the uterus include dysmenorrhea, retroverted uterus, endometriosis, fibroids, adenomyosis, anovulatory bleeding, amenorrhea, Cushing's syndrome, hydatidiform moles, Asherman's syndrome, premature menopause, precocious puberty, uterine polyps, dysfunctional uterine bleeding (e.g., due to aberrant hormonal signals), and neoplastic disorders, such as adenocarcinomas, leiomyosarcomas, and sarcomas. Additionally, the polypeptides, polynucleotides, or agonists or antagonists of the invention may be useful as a marker or detector of, as well as in the diagnosis, treatment, and/or prevention of congenital uterine abnormalities, such as bicornuate uterus, septate uterus, simple unicornuate uterus, unicornuate uterus with a noncavitary rudimentary horn, unicornuate uterus with a non-communicating cavitary rudimentary horn, unicornuate uterus with a communicating cavitary horn, arcuate uterus, uterine didelphys, and T-shaped uterus.

[0661] Ovarian diseases and/or disorders include anovulation, polycystic ovary syndrome (Stein-Leventhal syndrome), ovarian cysts, ovarian hypofunction, ovarian insensitivity to gonadotropins, ovarian overproduction of androgens, right ovarian vein syndrome, amenorrhea, hirsutism, and ovarian cancer (including, but not limited to, primary and secondary cancerous growth, Sertoli-Leydig tumors, endometrioid carcinoma of the ovary, ovarian papillary serous adenocarcinoma, ovarian mucinous adenocarcinoma, and Ovarian Krukenberg tumors).

[0662] Cervical diseases and/or disorders include cervicitis, chronic cervicitis, mucopurulent cervicitis, cervical dysplasia, cervical polyps, Nabothian cysts, cervical erosion, cervical incompetence, and cervical neoplasms (including, for example, cervical carcinoma, squamous metaplasia, squamous cell carcinoma, adenosquamous cell neoplasia, and columnar cell neoplasia).

[0663] Additionally, diseases and/or disorders of the reproductive system include disorders and/or diseases of pregnancy, including miscarriage and stillbirth, such as early abortion, late abortion, spontaneous abortion, induced abortion, therapeutic abortion, threatened abortion, missed abortion, incomplete abortion, complete abortion, habitual abortion, missed abortion, and septic abortion; ectopic pregnancy, anemia, Rh incompatibility, vaginal bleeding during pregnancy, gestational diabetes, intrauterine growth retardation, polyhydramnios, HELLP syndrome, abruptio placentae, placenta previa,



hyperemesis, preeclampsia, eclampsia, herpes gestationis, and urticaria of pregnancy. Additionally, the polynucleotides, polypeptides, and agonists or antagonists of the present invention may be used in the diagnosis, treatment, and/or prevention of diseases that can complicate pregnancy, including heart disease, heart failure, rheumatic heart disease, congenital heart disease, mitral valve prolapse, high blood pressure, anemia, kidney disease, infectious disease (e.g., rubella, cytomegalovirus, toxoplasmosis, infectious hepatitis, chlamydia, HIV, AIDS, and genital herpes), diabetes mellitus, Graves' disease, thyroiditis, hypothyroidism, Hashimoto's thyroiditis, chronic active hepatitis, cirrhosis of the liver, primary biliary cirrhosis, asthma, systemic lupus eryematosus, rheumatoid arthritis, myasthenia gravis, idiopathic thrombocytopenic purpura, appendicitis, ovarian cysts, gallbladder disorders, and obstruction of the intestine.

[0664] Complications associated with labor and parturition include premature rupture of the membranes, pre-term labor, post-term pregnancy, postmaturity, labor that progresses too slowly, fetal distress (e.g., abnormal heart rate (fetal or maternal), breathing problems, and abnormal fetal position), shoulder dystocia, prolapsed umbilical cord, amniotic fluid embolism, and aberrant uterine bleeding.

[0665] Further, diseases and/or disorders of the postdelivery period, including endometritis, myometritis, parametritis, peritonitis, pelvic thrombophlebitis, pulmonary embolism, endotoxemia, pyelonephritis, saphenous thrombophlebitis, mastitis, cystitis, postpartum hemorrhage, and inverted uterus.

[0666] Other disorders and/or diseases of the female reproductive system that may be diagnosed, treated, and/or prevented by the polynucleotides, polypeptides, and agonists or antagonists of the present invention include, for example, Turner's syndrome, pseudohermaphroditism, premenstrual syndrome, pelvic inflammatory disease, pelvic congestion (vascular engorgement), frigidity, anorgasmia, dyspareunia, ruptured fallopian tube, and Mittelschmerz.

#### Infectious Disease

[0667] Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention can be used to treat or detect infectious agents. For example, by increasing the immune response, particularly increasing the proliferation and differentiation of B and/or T

cells, infectious diseases may be treated. The immune response may be increased by either enhancing an existing immune response, or by initiating a new immune response. Alternatively, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may also directly inhibit the infectious agent, without necessarily eliciting an immune response.

[0668] Viruses are one example of an infectious agent that can cause disease or symptoms that can be treated or detected by a polynucleotide or polypeptide and/or agonist or antagonist of the present invention. Examples of viruses, include, but are not limited to Examples of viruses, include, but are not limited to the following DNA and RNA viruses and viral families: Arbovirus, Adenoviridae, Arenaviridae, Arterivirus, Birnaviridae, Bunyaviridae, Caliciviridae, Circoviridae, Coronaviridae, Dengue, EBV, HIV, Flaviviridae, Hepadnaviridae (Hepatitis), Herpesviridae (such as, Cytomegalovirus, Herpes Simplex, Herpes Zoster), Mononegavirus (e.g., Paramyxoviridae, Morbillivirus, Rhabdoviridae), Orthomyxoviridae (e.g., Influenza A, Influenza B, and parainfluenza), Papiloma virus, Papovaviridae, Parvoviridae, Picornaviridae, Poxviridae (such as Smallpox or Vaccinia), Reoviridae (e.g., Rotavirus), Retroviridae (HTLV-I, HTLV-II, Lentivirus), and Togaviridae (e.g., Rubivirus). Viruses falling within these families can cause a variety of diseases or symptoms, including, but not limited to: arthritis, bronchiollitis, respiratory syncytial virus, encephalitis, eye infections (e.g., conjunctivitis, keratitis), chronic fatigue syndrome, hepatitis (A, B, C, E, Chronic Active, Delta), Japanese B encephalitis, Junin, Chikungunya, Rift Valley fever, yellow fever, meningitis, opportunistic infections (e.g., AIDS), pneumonia, Burkitt's Lymphoma, chickenpox, hemorrhagic fever, Measles, Mumps, Parainfluenza, Rabies, the common cold, Polio, leukemia, Rubella, sexually transmitted diseases, skin diseases (e.g., Kaposi's, warts), and viremia. polynucleotides or polypeptides, or agonists or antagonists of the invention, can be used to treat or detect any of these symptoms or diseases. In specific embodiments, polynucleotides, polypeptides, or agonists or antagonists of the invention are used to treat: meningitis, Dengue, EBV, and/or hepatitis (e.g., hepatitis B). In an additional specific embodiment polynucleotides, polypeptides, or agonists or antagonists of the invention are used to treat patients nonresponsive to one or more other commercially available hepatitis vaccines. In a further specific embodiment polynucleotides, polypeptides, or agonists or antagonists of the invention are used to treat AIDS.

[0669] Similarly, bacterial and fungal agents that can cause disease or symptoms and that can be treated or detected by a polynucleotide or polypeptide and/or agonist or antagonist of the present invention include, but not limited to, the following Gram-Negative and Gram-positive bacteria, bacterial families, and fungi: Actinomyces (e.g., Norcardia), Acinetobacter, *Cryptococcus neoformans*, Aspergillus, Bacillaceae (e.g., *Bacillus anthracis*), Bacteroides (e.g., *Bacteroides fragilis*), Blastomycosis, Bordetella, Borrelia (e.g., *Borrelia burgdorferi*), Brucella, Candidia, Campylobacter, Chlamydia, Clostridium (e.g., *Clostridium botulinum*, *Clostridium difficile*, *Clostridium perfringens*, *Clostridium tetani*), Coccidioides, Corynebacterium (e.g., *Corynebacterium diphtheriae*), Cryptococcus, Dermatocycoses, *E. coli* (e.g., Enterotoxigenic *E. coli* and Enterohemorrhagic *E. coli*), Enterobacter (e.g., *Enterobacter aerogenes*), Enterobacteriaceae (Klebsiella, Salmonella (e.g., *Salmonella typhi*, *Salmonella enteritidis*, *Salmonella typhi*), Serratia, Yersinia, Shigella), Erysipelothrix, Haemophilus (e.g., *Haemophilus influenza* type B), Helicobacter, Legionella (e.g., *Legionella pneumophila*), Leptospira, Listeria (e.g., *Listeria monocytogenes*), Mycoplasma, Mycobacterium (e.g., *Mycobacterium leprae* and *Mycobacterium tuberculosis*), Vibrio (e.g., *Vibrio cholerae*), Neisseriaceae (e.g., *Neisseria gonorrhea*, *Neisseria meningitidis*), Pasteurellaceae, Proteus, Pseudomonas (e.g., *Pseudomonas aeruginosa*), Rickettsiaceae, Spirochetes (e.g., Treponema spp., Leptospira spp., Borrelia spp.), Shigella spp., Staphylococcus (e.g., *Staphylococcus aureus*), Meningiococcus, Pneumococcus and Streptococcus (e.g., *Streptococcus pneumoniae* and Groups A, B, and C Streptococci), and Ureaplasmas. These bacterial, parasitic, and fungal families can cause diseases or symptoms, including; but not limited to: antibiotic-resistant infections, bacteremia, endocarditis, septicemia, eye infections (e.g., conjunctivitis), uveitis, tuberculosis, gingivitis, bacterial diarrhea, opportunistic infections (e.g., AIDS related infections), paronychia, prosthesis-related infections, dental caries, Reiter's Disease, respiratory tract infections, such as Whooping Cough or Empyema, sepsis, Lyme Disease, Cat-Scratch Disease, dysentery, paratyphoid fever, food poisoning, Legionella disease, chronic and acute inflammation, erythema, yeast infections, typhoid, pneumonia, gonorrhea, meningitis (e.g., meningitis types A and B), chlamydia, syphilis, diphtheria, leprosy, brucellosis, peptic ulcers, anthrax, spontaneous abortions, birth defects, pneumonia, lung infections, ear infections, deafness, blindness, lethargy, malaise, vomiting, chronic diarrhea, Crohn's disease, colitis, vaginosis, sterility, pelvic inflammatory diseases, candidiasis, paratuberculosis, tuberculosis, lupus,

botulism, gangrene, tetanus, impetigo, Rheumatic Fever, Scarlet Fever, sexually transmitted diseases, skin diseases (e.g., cellulitis, dermatocycoses), toxemia, urinary tract infections, wound infections, noscomial infections. Polynucleotides or polypeptides, agonists or antagonists of the invention, can be used to treat or detect any of these symptoms or diseases. In specific embodiments, polynucleotides, polypeptides, agonists or antagonists of the invention are used to treat: tetanus, diphtheria, botulism, and/or meningitis type B.

[0670] Moreover, parasitic agents causing disease or symptoms that can be treated, prevented, and/or diagnosed by a polynucleotide or polypeptide and/or agonist or antagonist of the present invention include, but not limited to, the following families or class: Amebiasis, Babesiosis, Coccidiosis, Cryptosporidiosis, Dientamoebiasis, Dourine, Ectoparasitic, Giardiasis, Helminthiasis, Leishmaniasis, Schistosoma, Theileriasis, Toxoplasmosis, Trypanosomiasis, and Trichomonas and Sporozoans (e.g., *Plasmodium virax*, *Plasmodium falciparum*, *Plasmodium malariae* and *Plasmodium ovale*). These parasites can cause a variety of diseases or symptoms, including, but not limited to: Scabies, Trombiculiasis, eye infections, intestinal disease (e.g., dysentery, giardiasis), liver disease, lung disease, opportunistic infections (e.g., AIDS related), malaria, pregnancy complications, and toxoplasmosis. polynucleotides or polypeptides, or agonists or antagonists of the invention, can be used to treat, prevent, and/or diagnose any of these symptoms or diseases. In specific embodiments, polynucleotides, polypeptides, or agonists or antagonists of the invention are used to treat, prevent, and/or diagnose malaria.

[0671] Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention of the present invention could either be by administering an effective amount of a polypeptide to the patient, or by removing cells from the patient, supplying the cells with a polynucleotide of the present invention, and returning the engineered cells to the patient (ex vivo therapy). Moreover, the polypeptide or polynucleotide of the present invention can be used as an antigen in a vaccine to raise an immune response against infectious disease.

#### Regeneration

[0672] Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention can be used to differentiate, proliferate, and attract cells, leading to the regeneration of tissues. (See, Science 276:59-87 (1997)). The regeneration of tissues could be used to repair, replace, or protect tissue damaged by congenital defects, trauma (wounds, burns,

incisions, or ulcers), age, disease (e.g. osteoporosis, osteoarthritis, periodontal disease, liver failure), surgery, including cosmetic plastic surgery, fibrosis, reperfusion injury, or systemic cytokine damage.

[0673] Tissues that could be regenerated using the present invention include organs (e.g., pancreas, liver, intestine, kidney, skin, endothelium), muscle (smooth, skeletal or cardiac), vasculature (including vascular and lymphatics), nervous, hematopoietic, and skeletal (bone, cartilage, tendon, and ligament) tissue. Preferably, regeneration occurs without or decreased scarring. Regeneration also may include angiogenesis.

[0674] Moreover, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may increase regeneration of tissues difficult to heal. For example, increased tendon/ligament regeneration would quicken recovery time after damage. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention could also be used prophylactically in an effort to avoid damage. Specific diseases that could be treated include of tendinitis, carpal tunnel syndrome, and other tendon or ligament defects. A further example of tissue regeneration of non-healing wounds includes pressure ulcers, ulcers associated with vascular insufficiency, surgical, and traumatic wounds.

[0675] Similarly, nerve and brain tissue could also be regenerated by using polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, to proliferate and differentiate nerve cells. Diseases that could be treated using this method include central and peripheral nervous system diseases, neuropathies, or mechanical and traumatic disorders (e.g., spinal cord disorders, head trauma, cerebrovascular disease, and stroke). Specifically, diseases associated with peripheral nerve injuries, peripheral neuropathy (e.g., resulting from chemotherapy or other medical therapies), localized neuropathies, and central nervous system diseases (e.g., Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and Shy-Drager syndrome), could all be treated using the polynucleotides or polypeptides, as well as agonists or antagonists of the present invention.

#### Gastrointestinal Disorders

[0676] Polynucleotides or polypeptides, or agonists or antagonists of the present invention, may be used to treat, prevent, diagnose, and/or prognose gastrointestinal disorders,

including inflammatory diseases and/or conditions, infections, cancers (e.g., intestinal neoplasms (carcinoid tumor of the small intestine, non-Hodgkin's lymphoma of the small intestine, small bowel lymphoma)), and ulcers, such as peptic ulcers.

[0677] Gastrointestinal disorders include dysphagia, odynophagia, inflammation of the esophagus, peptic esophagitis, gastric reflux, submucosal fibrosis and stricturing, Mallory-Weiss lesions, leiomyomas, lipomas, epidermal cancers, adeoncarcinomas, gastric retention disorders, gastroenteritis, gastric atrophy, gastric/stomach cancers, polyps of the stomach, autoimmune disorders such as pernicious anemia, pyloric stenosis, gastritis (bacterial, viral, eosinophilic, stress-induced, chronic erosive, atrophic, plasma cell, and Ménétrier's), and peritoneal diseases (e.g., chyloperitoneum, hemoperitoneum, mesenteric cyst, mesenteric lymphadenitis, mesenteric vascular occlusion, panniculitis, neoplasms, peritonitis, pneumoperitoneum, bubphrenic abscess,).

[0678] Gastrointestinal disorders also include disorders associated with the small intestine, such as malabsorption syndromes, distension, irritable bowel syndrome, sugar intolerance, celiac disease, duodenal ulcers, duodenitis, tropical sprue, Whipple's disease, intestinal lymphangiectasia, Crohn's disease, appendicitis, obstructions of the ileum, Meckel's diverticulum, multiple diverticula, failure of complete rotation of the small and large intestine, lymphoma, and bacterial and parasitic diseases (such as Traveler's diarrhea, typhoid and paratyphoid, cholera, infection by Roundworms (*Ascariasis lumbricoides*), Hookworms (*Ancylostoma duodenale*), Threadworms (*Enterobius vermicularis*), Tapeworms (*Taenia saginata*, *Echinococcus granulosus*, *Diphyllobothrium spp.*, and *T. solium*).

[0679] Liver diseases and/or disorders include intrahepatic cholestasis (alagille syndrome, biliary liver cirrhosis), fatty liver (alcoholic fatty liver, reye syndrome), hepatic vein thrombosis, hepatolenticular degeneration, hepatomegaly, hepatopulmonary syndrome, hepatorenal syndrome, portal hypertension (esophageal and gastric varices), liver abscess (amebic liver abscess), liver cirrhosis (alcoholic, biliary and experimental), alcoholic liver diseases (fatty liver, hepatitis, cirrhosis), parasitic (hepatic echinococcosis, fascioliasis, amebic liver abscess), jaundice (hemolytic, hepatocellular, and cholestatic), cholestasis, portal hypertension, liver enlargement, ascites, hepatitis (alcoholic hepatitis, animal hepatitis, chronic hepatitis (autoimmune, hepatitis B, hepatitis C, hepatitis D, drug induced), toxic hepatitis, viral human hepatitis (hepatitis A, hepatitis B, hepatitis C, hepatitis D, hepatitis E), Wilson's disease, granulomatous hepatitis, secondary biliary cirrhosis, hepatic

encephalopathy, portal hypertension, varices, hepatic encephalopathy, primary biliary cirrhosis, primary sclerosing cholangitis, hepatocellular adenoma, hemangiomas, bile stones, liver failure (hepatic encephalopathy, acute liver failure), and liver neoplasms (angiomyolipoma, calcified liver metastases, cystic liver metastases, epithelial tumors, fibrolamellar hepatocarcinoma, focal nodular hyperplasia, hepatic adenoma, hepatobiliary cystadenoma, hepatoblastoma, hepatocellular carcinoma, hepatoma, liver cancer, liver hemangioendothelioma, mesenchymal hamartoma, mesenchymal tumors of liver, nodular regenerative hyperplasia, benign liver tumors (Hepatic cysts [Simple cysts, Polycystic liver disease, Hepatobiliary cystadenoma, Choledochal cyst], Mesenchymal tumors [Mesenchymal hamartoma, Infantile hemangioendothelioma, Hemangioma, Peliosis hepatis, Lipomas, Inflammatory pseudotumor, Miscellaneous], Epithelial tumors [Bile duct epithelium (Bile duct hamartoma, Bile duct adenoma), Hepatocyte (Adenoma, Focal nodular hyperplasia, Nodular regenerative hyperplasia)]), malignant liver tumors [hepatocellular, hepatoblastoma, hepatocellular carcinoma, cholangiocellular, cholangiocarcinoma, cystadenocarcinoma, tumors of blood vessels, angiosarcoma, Kaposi's sarcoma, hemangioendothelioma, other tumors, embryonal sarcoma, fibrosarcoma, leiomyosarcoma, rhabdomyosarcoma, carcinosarcoma, teratoma, carcinoid, squamous carcinoma, primary lymphoma]), peliosis hepatis, erythrohepatic porphyria, hepatic porphyria (acute intermittent porphyria, porphyria cutanea tarda), Zellweger syndrome).

[0680] Pancreatic diseases and/or disorders include acute pancreatitis, chronic pancreatitis (acute necrotizing pancreatitis, alcoholic pancreatitis), neoplasms (adenocarcinoma of the pancreas, cystadenocarcinoma, insulinoma, gastrinoma, and glucagonoma, cystic neoplasms, islet-cell tumors, pancreoblastoma), and other pancreatic diseases (e.g., cystic fibrosis, cyst (pancreatic pseudocyst, pancreatic fistula, insufficiency)).

[0681] Gallbladder diseases include gallstones (cholelithiasis and choledocholithiasis), postcholecystectomy syndrome, diverticulosis of the gallbladder, acute cholecystitis, chronic cholecystitis, bile duct tumors, and mucocele.

[0682] Diseases and/or disorders of the large intestine include antibiotic-associated colitis, diverticulitis, ulcerative colitis, acquired megacolon, abscesses, fungal and bacterial infections, anorectal disorders (e.g., fissures, hemorrhoids), colonic diseases (colitis, colonic neoplasms [colon cancer, adenomatous colon polyps (e.g., villous adenoma), colon carcinoma, colorectal cancer], colonic diverticulitis, colonic diverticulosis, megacolon

[Hirschsprung disease, toxic megacolon]; sigmoid diseases [proctocolitis, sigmoid neoplasms]), constipation, Crohn's disease, diarrhea (infantile diarrhea, dysentery), duodenal diseases (duodenal neoplasms, duodenal obstruction, duodenal ulcer, duodenitis), enteritis (enterocolitis), HIV enteropathy, ileal diseases (ileal neoplasms, ileitis), immunoproliferative small intestinal disease, inflammatory bowel disease (ulcerative colitis, Crohn's disease), intestinal atresia, parasitic diseases (anisakiasis, balantidiasis, blastocystis infections, cryptosporidiosis, dientamoebiasis, amebic dysentery, giardiasis), intestinal fistula (rectal fistula), intestinal neoplasms (cecal neoplasms, colonic neoplasms, duodenal neoplasms, ileal neoplasms, intestinal polyps, jejunal neoplasms, rectal neoplasms), intestinal obstruction (afferent loop syndrome, duodenal obstruction, impacted feces, intestinal pseudo-obstruction [cecal volvulus], intussusception), intestinal perforation, intestinal polyps (colonic polyps, gardner syndrome, peutz-jeghers syndrome), jejunal diseases (jejunal neoplasms), malabsorption syndromes (blind loop syndrome, celiac disease, lactose intolerance, short bowel syndrome, tropical sprue, whipple's disease), mesenteric vascular occlusion, pneumatosis cystoides intestinalis, protein-losing enteropathies (intestinal lymphangiectasis), rectal diseases (anus diseases, fecal incontinence, hemorrhoids, proctitis, rectal fistula, rectal prolapse, rectocele), peptic ulcer (duodenal ulcer, peptic esophagitis, hemorrhage, perforation, stomach ulcer, Zollinger-Ellison syndrome), postgastrectomy syndromes (dumping syndrome), stomach diseases (e.g., achlorhydria, duodenogastric reflux (bile reflux), gastric antral vascular ectasia, gastric fistula, gastric outlet obstruction, gastritis (atrophic or hypertrophic), gastroparesis, stomach dilatation, stomach diverticulum, stomach neoplasms (gastric cancer, gastric polyps, gastric adenocarcinoma, hyperplastic gastric polyp), stomach rupture, stomach ulcer, stomach volvulus), tuberculosis, visceroptosis, vomiting (e.g., hematemesis, hyperemesis gravidarum, postoperative nausea and vomiting) and hemorrhagic colitis.

[0683] Further diseases and/or disorders of the gastrointestinal system include biliary tract diseases, such as, gastroschisis, fistula (e.g., biliary fistula, esophageal fistula, gastric fistula, intestinal fistula, pancreatic fistula), neoplasms (e.g., biliary tract neoplasms, esophageal neoplasms, such as adenocarcinoma of the esophagus, esophageal squamous cell carcinoma, gastrointestinal neoplasms, pancreatic neoplasms, such as adenocarcinoma of the pancreas, mucinous cystic neoplasm of the pancreas, pancreatic cystic neoplasms, pancreatoblastoma, and peritoneal neoplasms), esophageal disease (e.g., bullous diseases, candidiasis, glycogenic



acanthosis, ulceration, barrett esophagus varices, atresia, cyst, diverticulum (e.g., Zenker's diverticulum), fistula (e.g., tracheoesophageal fistula), motility disorders (e.g., CREST syndrome, deglutition disorders, achalasia, spasm, gastroesophageal reflux), neoplasms, perforation (e.g., Boerhaave syndrome, Mallory-Weiss syndrome), stenosis, esophagitis, diaphragmatic hernia (e.g., hiatal hernia); gastrointestinal diseases, such as, gastroenteritis (e.g., cholera morbus, norwalk virus infection), hemorrhage (e.g., hematemesis, melena, peptic ulcer hemorrhage), stomach neoplasms (gastric cancer, gastric polyps, gastric adenocarcinoma, stomach cancer)), hernia (e.g., congenital diaphragmatic hernia, femoral hernia, inguinal hernia, obturator hernia, umbilical hernia, ventral hernia), and intestinal diseases (e.g., cecal diseases (appendicitis, cecal neoplasms)).

#### Chemotaxis

[0684] Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may have chemotaxis activity. A chemotaxic molecule attracts or mobilizes cells (e.g., monocytes, fibroblasts, neutrophils, T-cells, mast cells, eosinophils, epithelial and/or endothelial cells) to a particular site in the body, such as inflammation, infection, or site of hyperproliferation. The mobilized cells can then fight off and/or heal the particular trauma or abnormality.

[0685] Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may increase chemotaxic activity of particular cells. These chemotactic molecules can then be used to treat inflammation, infection, hyperproliferative disorders, or any immune system disorder by increasing the number of cells targeted to a particular location in the body. For example, chemotaxic molecules can be used to treat wounds and other trauma to tissues by attracting immune cells to the injured location. Chemotactic molecules of the present invention can also attract fibroblasts, which can be used to treat wounds.

[0686] It is also contemplated that polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may inhibit chemotactic activity. These molecules could also be used to treat disorders. Thus, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention could be used as an inhibitor of chemotaxis.

#### Binding Activity

[0687] A polypeptide of the present invention may be used to screen for molecules that bind to the polypeptide or for molecules to which the polypeptide binds. The binding of the polypeptide and the molecule may activate (agonist), increase, inhibit (antagonist), or decrease activity of the polypeptide or the molecule bound. Examples of such molecules include antibodies, oligonucleotides, proteins (e.g., receptors), or small molecules.

[0688] Preferably, the molecule is closely related to the natural ligand of the polypeptide, e.g., a fragment of the ligand, or a natural substrate, a ligand, a structural or functional mimetic. (See, Coligan et al., Current Protocols in Immunology 1(2):Chapter 5 (1991)). Similarly, the molecule can be closely related to the natural receptor to which the polypeptide binds, or at least, a fragment of the receptor capable of being bound by the polypeptide (e.g., active site). In either case, the molecule can be rationally designed using known techniques.

[0689] Preferably, the screening for these molecules involves producing appropriate cells which express the polypeptide. Preferred cells include cells from mammals, yeast, *Drosophila*, or *E. coli*. Cells expressing the polypeptide (or cell membrane containing the expressed polypeptide) are then preferably contacted with a test compound potentially containing the molecule to observe binding, stimulation, or inhibition of activity of either the polypeptide or the molecule.

[0690] The assay may simply test binding of a candidate compound to the polypeptide, wherein binding is detected by a label, or in an assay involving competition with a labeled competitor. Further, the assay may test whether the candidate compound results in a signal generated by binding to the polypeptide.

[0691] Alternatively, the assay can be carried out using cell-free preparations, polypeptide/molecule affixed to a solid support, chemical libraries, or natural product mixtures. The assay may also simply comprise the steps of mixing a candidate compound with a solution containing a polypeptide, measuring polypeptide/molecule activity or binding, and comparing the polypeptide/molecule activity or binding to a standard.

[0692] Preferably, an ELISA assay can measure polypeptide level or activity in a sample (e.g., biological sample) using a monoclonal or polyclonal antibody. The antibody can measure polypeptide level or activity by either binding, directly or indirectly, to the polypeptide or by competing with the polypeptide for a substrate.

[0693] Additionally, the receptor to which the polypeptide of the present invention binds can be identified by numerous methods known to those of skill in the art, for example, ligand

panning and FACS sorting (Coligan, et al., *Current Protocols in Immun.*, 1(2), Chapter 5, (1991)). For example, expression cloning is employed wherein polyadenylated RNA is prepared from a cell responsive to the polypeptides, for example, NIH3T3 cells which are known to contain multiple receptors for the FGF family proteins, and SC-3 cells, and a cDNA library created from this RNA is divided into pools and used to transfect COS cells or other cells that are not responsive to the polypeptides. Transfected cells which are grown on glass slides are exposed to the polypeptide of the present invention, after they have been labeled. The polypeptides can be labeled by a variety of means including iodination or inclusion of a recognition site for a site-specific protein kinase.

[0694] Following fixation and incubation, the slides are subjected to auto-radiographic analysis. Positive pools are identified and sub-pools are prepared and re-transfected using an iterative sub-pooling and re-screening process, eventually yielding a single clones that encodes the putative receptor.

[0695] As an alternative approach for receptor identification, the labeled polypeptides can be photoaffinity linked with cell membrane or extract preparations that express the receptor molecule. Cross-linked material is resolved by PAGE analysis and exposed to X-ray film. The labeled complex containing the receptors of the polypeptides can be excised, resolved into peptide fragments, and subjected to protein microsequencing. The amino acid sequence obtained from microsequencing would be used to design a set of degenerate oligonucleotide probes to screen a cDNA library to identify the genes encoding the putative receptors.

[0696] Moreover, the techniques of gene-shuffling, motif-shuffling, exon-shuffling, and/or codon-shuffling (collectively referred to as "DNA shuffling") may be employed to modulate the activities of the polypeptide of the present invention thereby effectively generating agonists and antagonists of the polypeptide of the present invention. *See generally*, U.S. Patent Nos. 5,605,793, 5,811,238, 5,830,721, 5,834,252, and 5,837,458, and Patten, P. A., *et al.*, *Curr. Opinion Biotechnol.* 8:724-33 (1997); Harayama, S. *Trends Biotechnol.* 16(2):76-82 (1998); Hansson, L. O., *et al.*, *J. Mol. Biol.* 287:265-76 (1999); and Lorenzo, M. M. and Blasco, R. *Biotechniques* 24(2):308-13 (1998); each of these patents and publications are hereby incorporated by reference). In one embodiment, alteration of polynucleotides and corresponding polypeptides may be achieved by DNA shuffling. DNA shuffling involves the assembly of two or more DNA segments into a desired molecule by homologous, or site-specific, recombination. In another embodiment, polynucleotides and

corresponding polypeptides may be altered by being subjected to random mutagenesis by error-prone PCR, random nucleotide insertion or other methods prior to recombination. In another embodiment, one or more components, motifs, sections, parts, domains, fragments, etc., of the polypeptide of the present invention may be recombined with one or more components, motifs, sections, parts, domains, fragments, etc. of one or more heterologous molecules. In preferred embodiments, the heterologous molecules are family members. In further preferred embodiments, the heterologous molecule is a growth factor such as, for example, platelet-derived growth factor (PDGF), insulin-like growth factor (IGF-I), transforming growth factor (TGF)-alpha, epidermal growth factor (EGF), fibroblast growth factor (FGF), TGF-beta, bone morphogenetic protein (BMP)-2, BMP-4, BMP-5, BMP-6, BMP-7, activins A and B, decapentaplegic(dpp), 60A, OP-2, dorsalin, growth differentiation factors (GDFs), nodal, MIS, inhibin-alpha, TGF-beta1, TGF-beta2, TGF-beta3, TGF-beta5, and glial-derived neurotrophic factor (GDNF).

[0697] Other preferred fragments are biologically active fragments of the polypeptide of the present invention. Biologically active fragments are those exhibiting activity similar, but not necessarily identical, to an activity of the polypeptide of the present invention. The biological activity of the fragments may include an improved desired activity, or a decreased undesirable activity.

[0698] Additionally, this invention provides a method of screening compounds to identify those which modulate the action of the polypeptide of the present invention. An example of such an assay comprises combining a mammalian fibroblast cell, a the polypeptide of the present invention, the compound to be screened and  $^3\text{[H]}$  thymidine under cell culture conditions where the fibroblast cell would normally proliferate. A control assay may be performed in the absence of the compound to be screened and compared to the amount of fibroblast proliferation in the presence of the compound to determine if the compound stimulates proliferation by determining the uptake of  $^3\text{[H]}$  thymidine in each case. The amount of fibroblast cell proliferation is measured by liquid scintillation chromatography which measures the incorporation of  $^3\text{[H]}$  thymidine. Both agonist and antagonist compounds may be identified by this procedure.

[0699] In another method, a mammalian cell or membrane preparation expressing a receptor for a polypeptide of the present invention is incubated with a labeled polypeptide of

the present invention in the presence of the compound. The ability of the compound to enhance or block this interaction could then be measured. Alternatively, the response of a known second messenger system following interaction of a compound to be screened and the receptor is measured and the ability of the compound to bind to the receptor and elicit a second messenger response is measured to determine if the compound is a potential agonist or antagonist. Such second messenger systems include but are not limited to, cAMP guanylate cyclase, ion channels or phosphoinositide hydrolysis.

[0700] All of these above assays can be used as diagnostic or prognostic markers. The molecules discovered using these assays can be used to treat disease or to bring about a particular result in a patient (e.g., blood vessel growth) by activating or inhibiting the polypeptide/molecule. Moreover, the assays can discover agents which may inhibit or enhance the production of the polypeptides of the invention from suitably manipulated cells or tissues.

[0701] Therefore, the invention includes a method of identifying compounds which bind to a polypeptide of the invention comprising the steps of: (a) incubating a candidate binding compound with a polypeptide of the present invention; and (b) determining if binding has occurred. Moreover, the invention includes a method of identifying agonists/antagonists comprising the steps of: (a) incubating a candidate compound with a polypeptide of the present invention, (b) assaying a biological activity, and (b) determining if a biological activity of the polypeptide has been altered.

#### Targeted Delivery

[0702] In another embodiment, the invention provides a method of delivering compositions to targeted cells expressing a receptor for a polypeptide of the invention, or cells expressing a cell bound form of a polypeptide of the invention.

[0703] As discussed herein, polypeptides or antibodies of the invention may be associated with heterologous polypeptides, heterologous nucleic acids, toxins, or prodrugs via hydrophobic, hydrophilic, ionic and/or covalent interactions. In one embodiment, the invention provides a method for the specific delivery of compositions of the invention to cells by administering polypeptides of the invention (including antibodies) that are associated with heterologous polypeptides or nucleic acids. In one example, the invention provides a method for delivering a therapeutic protein into the targeted cell. In another example, the invention

provides a method for delivering a single stranded nucleic acid (e.g., antisense or ribozymes) or double stranded nucleic acid (e.g., DNA that can integrate into the cell's genome or replicate episomally and that can be transcribed) into the targeted cell.

[0704] In another embodiment, the invention provides a method for the specific destruction of cells (e.g., the destruction of tumor cells) by administering polypeptides of the invention (e.g., polypeptides of the invention or antibodies of the invention) in association with toxins or cytotoxic prodrugs.

[0705] By "toxin" is meant compounds that bind and activate endogenous cytotoxic effector systems, radioisotopes, holotoxins, modified toxins, catalytic subunits of toxins, or any molecules or enzymes not normally present in or on the surface of a cell that under defined conditions cause the cell's death. Toxins that may be used according to the methods of the invention include, but are not limited to, radioisotopes known in the art, compounds such as, for example, antibodies (or complement fixing containing portions thereof) that bind an inherent or induced endogenous cytotoxic effector system, thymidine kinase, endonuclease, RNase, alpha toxin, ricin, abrin, *Pseudomonas* exotoxin A, diphtheria toxin, saporin, momordin, gelonin, pokeweed antiviral protein, alpha-sarcin and cholera toxin. By "cytotoxic prodrug" is meant a non-toxic compound that is converted by an enzyme, normally present in the cell, into a cytotoxic compound. Cytotoxic prodrugs that may be used according to the methods of the invention include, but are not limited to, glutamyl derivatives of benzoic acid mustard alkylating agent, phosphate derivatives of etoposide or mitomycin C, cytosine arabinoside, daunorubisin, and phenoxyacetamide derivatives of doxorubicin.

#### Drug Screening

[0706] Further contemplated is the use of the polypeptides of the present invention, or the polynucleotides encoding these polypeptides, to screen for molecules which modify the activities of the polypeptides of the present invention. Such a method would include contacting the polypeptide of the present invention with a selected compound(s) suspected of having antagonist or agonist activity, and assaying the activity of these polypeptides following binding.

[0707] This invention is particularly useful for screening therapeutic compounds by using

the polypeptides of the present invention, or binding fragments thereof, in any of a variety of drug screening techniques. The polypeptide or fragment employed in such a test may be affixed to a solid support, expressed on a cell surface, free in solution, or located intracellularly. One method of drug screening utilizes eukaryotic or prokaryotic host cells which are stably transformed with recombinant nucleic acids expressing the polypeptide or fragment. Drugs are screened against such transformed cells in competitive binding assays. One may measure, for example, the formulation of complexes between the agent being tested and a polypeptide of the present invention.

[0708] Thus, the present invention provides methods of screening for drugs or any other agents which affect activities mediated by the polypeptides of the present invention. These methods comprise contacting such an agent with a polypeptide of the present invention or a fragment thereof and assaying for the presence of a complex between the agent and the polypeptide or a fragment thereof, by methods well known in the art. In such a competitive binding assay, the agents to screen are typically labeled. Following incubation, free agent is separated from that present in bound form, and the amount of free or uncomplexed label is a measure of the ability of a particular agent to bind to the polypeptides of the present invention.

[0709] Another technique for drug screening provides high throughput screening for compounds having suitable binding affinity to the polypeptides of the present invention, and is described in great detail in European Patent Application 84/03564, published on September 13, 1984, which is incorporated herein by reference herein. Briefly stated, large numbers of different small peptide test compounds are synthesized on a solid substrate, such as plastic pins or some other surface. The peptide test compounds are reacted with polypeptides of the present invention and washed. Bound polypeptides are then detected by methods well known in the art. Purified polypeptides are coated directly onto plates for use in the aforementioned drug screening techniques. In addition, non-neutralizing antibodies may be used to capture the peptide and immobilize it on the solid support.

[0710] This invention also contemplates the use of competitive drug screening assays in which neutralizing antibodies capable of binding polypeptides of the present invention specifically compete with a test compound for binding to the polypeptides or fragments thereof. In this manner, the antibodies are used to detect the presence of any peptide which shares one or more antigenic epitopes with a polypeptide of the invention.

### Antisense And Ribozyme (Antagonists)

[0711] In specific embodiments, antagonists according to the present invention are nucleic acids corresponding to the sequences contained in SEQ ID NO:X, or the complementary strand thereof, and/or to cDNA sequences contained in cDNA Clone ID NO:Z identified for example, in Table 1. In one embodiment, antisense sequence is generated internally, by the organism, in another embodiment, the antisense sequence is separately administered (see, for example, O'Connor, J., *Neurochem.* 56:560 (1991). *Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression*, CRC Press, Boca Raton, FL (1988). Antisense technology can be used to control gene expression through antisense DNA or RNA, or through triple-helix formation. Antisense techniques are discussed for example, in Okano, J., *Neurochem.* 56:560 (1991); *Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression*, CRC Press, Boca Raton, FL (1988). Triple helix formation is discussed in, for instance, Lee et al., *Nucleic Acids Research* 6:3073 (1979); Cooney et al., *Science* 241:456 (1988); and Dervan et al., *Science* 251:1300 (1991). The methods are based on binding of a polynucleotide to a complementary DNA or RNA.

[0712] For example, the use of c-myc and c-myb antisense RNA constructs to inhibit the growth of the non-lymphocytic leukemia cell line HL-60 and other cell lines was previously described. (Wickstrom et al. (1988); Anfossi et al. (1989)). These experiments were performed *in vitro* by incubating cells with the oligoribonucleotide. A similar procedure for *in vivo* use is described in WO 91/15580. Briefly, a pair of oligonucleotides for a given antisense RNA is produced as follows: A sequence complimentary to the first 15 bases of the open reading frame is flanked by an EcoR1 site on the 5' end and a HindIII site on the 3' end. Next, the pair of oligonucleotides is heated at 90°C for one minute and then annealed in 2X ligation buffer (20mM TRIS HCl pH 7.5, 10mM MgCl<sub>2</sub>, 10mM dithiothreitol (DTT) and 0.2 mM ATP) and then ligated to the EcoR1/Hind III site of the retroviral vector PMV7 (WO 91/15580).

[0713] For example, the 5' coding portion of a polynucleotide that encodes the polypeptide of the present invention may be used to design an antisense RNA oligonucleotide of from about 10 to 40 base pairs in length. A DNA oligonucleotide is designed to be complementary to a region of the gene involved in transcription thereby preventing transcription and the production of the receptor. The antisense RNA oligonucleotide



hybridizes to the mRNA *in vivo* and blocks translation of the mRNA molecule into receptor polypeptide.

[0714] In one embodiment, the antisense nucleic acid of the invention is produced intracellularly by transcription from an exogenous sequence. For example, a vector or a portion thereof, is transcribed, producing an antisense nucleic acid (RNA) of the invention. Such a vector would contain a sequence encoding the antisense nucleic acid. Such a vector can remain episomal or become chromosomally integrated, as long as it can be transcribed to produce the desired antisense RNA. Such vectors can be constructed by recombinant DNA technology methods standard in the art. Vectors can be plasmid, viral, or others known in the art, used for replication and expression in vertebrate cells. Expression of the sequence encoding the polypeptide of the present invention or fragments thereof, can be by any promoter known in the art to act in vertebrate, preferably human cells. Such promoters can be inducible or constitutive. Such promoters include, but are not limited to, the SV40 early promoter region (Bernoist and Chambon, *Nature* 29:304-310 (1981)), the promoter contained in the 3' long terminal repeat of Rous sarcoma virus (Yamamoto et al., *Cell* 22:787-797 (1980)), the herpes thymidine promoter (Wagner et al., *Proc. Natl. Acad. Sci. U.S.A.* 78:1441-1445 (1981)), the regulatory sequences of the metallothionein gene (Brinster, et al., *Nature* 296:39-42 (1982)), etc.

[0715] The antisense nucleic acids of the invention comprise a sequence complementary to at least a portion of an RNA transcript of a gene of the present invention. However, absolute complementarity, although preferred, is not required. A sequence "complementary to at least a portion of an RNA," referred to herein, means a sequence having sufficient complementarity to be able to hybridize with the RNA, forming a stable duplex; in the case of double stranded antisense nucleic acids, a single strand of the duplex DNA may thus be tested, or triplex formation may be assayed. The ability to hybridize will depend on both the degree of complementarity and the length of the antisense nucleic acid. Generally, the larger the hybridizing nucleic acid, the more base mismatches with a RNA it may contain and still form a stable duplex (or triplex as the case may be). One skilled in the art can ascertain a tolerable degree of mismatch by use of standard procedures to determine the melting point of the hybridized complex.

[0716] Oligonucleotides that are complementary to the 5' end of the message, e.g., the 5' untranslated sequence up to and including the AUG initiation codon, should work most

efficiently at inhibiting translation. However, sequences complementary to the 3' untranslated sequences of mRNAs have been shown to be effective at inhibiting translation of mRNAs as well. See generally, Wagner, R., 1994, *Nature* 372:333-335. Thus, oligonucleotides complementary to either the 5'- or 3'- non-translated, non-coding regions of polynucleotide sequences described herein could be used in an antisense approach to inhibit translation of endogenous mRNA. Oligonucleotides complementary to the 5' untranslated region of the mRNA should include the complement of the AUG start codon. Antisense oligonucleotides complementary to mRNA coding regions are less efficient inhibitors of translation but could be used in accordance with the invention. Whether designed to hybridize to the 5', 3'- or coding region of mRNA of the present invention, antisense nucleic acids should be at least six nucleotides in length, and are preferably oligonucleotides ranging from 6 to about 50 nucleotides in length. In specific aspects the oligonucleotide is at least 10 nucleotides, at least 17 nucleotides, at least 25 nucleotides or at least 50 nucleotides.

[0717] The polynucleotides of the invention can be DNA or RNA or chimeric mixtures or derivatives or modified versions thereof, single-stranded or double-stranded. The oligonucleotide can be modified at the base moiety, sugar moiety, or phosphate backbone, for example, to improve stability of the molecule, hybridization, etc. The oligonucleotide may include other appended groups such as peptides (e.g., for targeting host cell receptors *in vivo*), or agents facilitating transport across the cell membrane (see, e.g., Letsinger et al., 1989, *Proc. Natl. Acad. Sci. U.S.A.* 86:6553-6556; Lemaitre et al., 1987, *Proc. Natl. Acad. Sci.* 84:648-652; PCT Publication No. WO88/09810, published December 15, 1988) or the blood-brain barrier (see, e.g., PCT Publication No. WO89/10134, published April 25, 1988), hybridization-triggered cleavage agents. (See, e.g., Krol et al., 1988, *BioTechniques* 6:958-976) or intercalating agents. (See, e.g., Zon, 1988, *Pharm. Res.* 5:539-549). To this end, the oligonucleotide may be conjugated to another molecule, e.g., a peptide, hybridization triggered cross-linking agent, transport agent, hybridization-triggered cleavage agent, etc.

[0718] The antisense oligonucleotide may comprise at least one modified base moiety which is selected from the group including, but not limited to, 5-fluorouracil, 5-bromouracil, 5-chlorouracil, 5-iodouracil, hypoxanthine, xantine, 4-acetylcytosine, 5-(carboxyhydroxymethyl) uracil, 5-carboxymethylaminomethyl-2-thiouridine, 5-carboxymethylaminomethyluracil, dihydrouracil, beta-D-galactosylqueosine, inosine, N6-isopentenyladenine, 1-methylguanine, 1-methylinosine, 2,2-dimethylguanine,

2-methyladenine, 2-methylguanine, 3-methylcytosine, 5-methylcytosine, N6-adenine, 7-methylguanine, 5-methylaminomethyluracil, 5-methoxyaminomethyl-2-thiouracil, beta-D-mannosylqueosine, 5'-methoxycarboxymethyluracil, 5-methoxyuracil, 2-methylthio-N6-isopentenyladenine, uracil-5-oxyacetic acid (v), wybutoxosine, pseudouracil, queosine, 2-thiocytosine, 5-methyl-2-thiouracil, 2-thiouracil, 4-thiouracil, 5-methyluracil, uracil-5-oxyacetic acid methylester, uracil-5-oxyacetic acid (v), 5-methyl-2-thiouracil, 3-(3-amino-3-N-2-carboxypropyl) uracil, (acp3)w, and 2,6-diaminopurine.

[0719] The antisense oligonucleotide may also comprise at least one modified sugar moiety selected from the group including, but not limited to, arabinose, 2-fluoroarabinose, xylulose, and hexose.

[0720] In yet another embodiment, the antisense oligonucleotide comprises at least one modified phosphate backbone selected from the group including, but not limited to, a phosphorothioate, a phosphorodithioate, a phosphoramidothioate, a phosphoramidate, a phosphordiamidate, a methylphosphonate, an alkyl phosphotriester, and a formacetal or analog thereof.

[0721] In yet another embodiment, the antisense oligonucleotide is an a-anomeric oligonucleotide. An a-anomeric oligonucleotide forms specific double-stranded hybrids with complementary RNA in which, contrary to the usual b-units, the strands run parallel to each other (Gautier et al., 1987, Nucl. Acids Res. 15:6625-6641). The oligonucleotide is a 2'-O-methylribonucleotide (Inoue et al., 1987, Nucl. Acids Res. 15:6131-6148), or a chimeric RNA-DNA analogue (Inoue et al., 1987, FEBS Lett. 215:327-330).

[0722] Polynucleotides of the invention may be synthesized by standard methods known in the art, e.g. by use of an automated DNA synthesizer (such as are commercially available from Biosearch, Applied Biosystems, etc.). As examples, phosphorothioate oligonucleotides may be synthesized by the method of Stein et al. (1988, Nucl. Acids Res. 16:3209), methylphosphonate oligonucleotides can be prepared by use of controlled pore glass polymer supports (Sarin et al., 1988, Proc. Natl. Acad. Sci. U.S.A. 85:7448-7451), etc.

[0723] While antisense nucleotides complementary to the coding region sequence could be used, those complementary to the transcribed untranslated region are most preferred.

[0724] Potential antagonists according to the invention also include catalytic RNA, or a ribozyme (See, e.g., PCT International Publication WO 90/11364, published October 4, 1990; Sarver et al, Science 247:1222-1225 (1990). While ribozymes that cleave mRNA at 1938

site specific recognition sequences can be used to destroy mRNAs, the use of hammerhead ribozymes is preferred. Hammerhead ribozymes cleave mRNAs at locations dictated by flanking regions that form complementary base pairs with the target mRNA. The sole requirement is that the target mRNA have the following sequence of two bases: 5'-UG-3'. The construction and production of hammerhead ribozymes is well known in the art and is described more fully in Haseloff and Gerlach, *Nature* 334:585-591 (1988). There are numerous potential hammerhead ribozyme cleavage sites within the nucleotide sequence of SEQ ID NO:X. Preferably, the ribozyme is engineered so that the cleavage recognition site is located near the 5' end of the mRNA; i.e., to increase efficiency and minimize the intracellular accumulation of non-functional mRNA transcripts.

[0725] As in the antisense approach, the ribozymes of the invention can be composed of modified oligonucleotides (e.g., for improved stability, targeting, etc.) and should be delivered to cells which express *in vivo*. DNA constructs encoding the ribozyme may be introduced into the cell in the same manner as described above for the introduction of antisense encoding DNA. A preferred method of delivery involves using a DNA construct "encoding" the ribozyme under the control of a strong constitutive promoter, such as, for example, pol III or pol II promoter, so that transfected cells will produce sufficient quantities of the ribozyme to destroy endogenous messages and inhibit translation. Since ribozymes unlike antisense molecules, are catalytic, a lower intracellular concentration is required for efficiency.

[0726] Antagonist/agonist compounds may be employed to inhibit the cell growth and proliferation effects of the polypeptides of the present invention on neoplastic cells and tissues, i.e. stimulation of angiogenesis of tumors, and, therefore, retard or prevent abnormal cellular growth and proliferation, for example, in tumor formation or growth.

[0727] The antagonist/agonist may also be employed to prevent hyper-vascular diseases, and prevent the proliferation of epithelial lens cells after extracapsular cataract surgery. Prevention of the mitogenic activity of the polypeptides of the present invention may also be desirous in cases such as restenosis after balloon angioplasty.

[0728] The antagonist/agonist may also be employed to prevent the growth of scar tissue during wound healing.

[0729] The antagonist/agonist may also be employed to treat the diseases described herein.

[0730] Thus, the invention provides a method of treating disorders or diseases, including but not limited to the disorders or diseases listed throughout this application, associated with overexpression of a polynucleotide of the present invention by administering to a patient (a) an antisense molecule directed to the polynucleotide of the present invention, and/or (b) a ribozyme directed to the polynucleotide of the present invention.

#### Binding Peptides and Other Molecules

[0731] The invention also encompasses screening methods for identifying polypeptides and nonpolypeptides that bind polypeptides of the invention, and the binding molecules identified thereby. These binding molecules are useful, for example, as agonists and antagonists of the polypeptides of the invention. Such agonists and antagonists can be used, in accordance with the invention, in the therapeutic embodiments described in detail, below.

[0732] This method comprises the steps of:

contacting polypeptides of the invention with a plurality of molecules;

and

identifying a molecule that binds the polypeptides of the invention.

[0733] The step of contacting the polypeptides of the invention with the plurality of molecules may be effected in a number of ways. For example, one may contemplate immobilizing the polypeptides on a solid support and bringing a solution of the plurality of molecules in contact with the immobilized polypeptides. Such a procedure would be akin to an affinity chromatographic process, with the affinity matrix being comprised of the immobilized polypeptides of the invention. The molecules having a selective affinity for the polypeptides can then be purified by affinity selection. The nature of the solid support, process for attachment of the polypeptides to the solid support, solvent, and conditions of the affinity isolation or selection are largely conventional and well known to those of ordinary skill in the art.

[0734] Alternatively, one may also separate a plurality of polypeptides into substantially separate fractions comprising a subset of or individual polypeptides. For instance, one can separate the plurality of polypeptides by gel electrophoresis, column chromatography, or like method known to those of ordinary skill for the separation of polypeptides. The individual polypeptides can also be produced by a transformed host cell in such a way as to be expressed on or about its outer surface (e.g., a recombinant phage). Individual isolates can

then be "probed" by the polypeptides of the invention, optionally in the presence of an inducer should one be required for expression, to determine if any selective affinity interaction takes place between the polypeptides and the individual clone. Prior to contacting the polypeptides with each fraction comprising individual polypeptides, the polypeptides could first be transferred to a solid support for additional convenience. Such a solid support may simply be a piece of filter membrane, such as one made of nitrocellulose or nylon. In this manner, positive clones could be identified from a collection of transformed host cells of an expression library, which harbor a DNA construct encoding a polypeptide having a selective affinity for polypeptides of the invention. Furthermore, the amino acid sequence of the polypeptide having a selective affinity for the polypeptides of the invention can be determined directly by conventional means or the coding sequence of the DNA encoding the polypeptide can frequently be determined more conveniently. The primary sequence can then be deduced from the corresponding DNA sequence. If the amino acid sequence is to be determined from the polypeptide itself, one may use microsequencing techniques. The sequencing technique may include mass spectroscopy.

[0735] In certain situations, it may be desirable to wash away any unbound polypeptides from a mixture of the polypeptides of the invention and the plurality of polypeptides prior to attempting to determine or to detect the presence of a selective affinity interaction. Such a wash step may be particularly desirable when the polypeptides of the invention or the plurality of polypeptides are bound to a solid support.

[0736] The plurality of molecules provided according to this method may be provided by way of diversity libraries, such as random or combinatorial peptide or nonpeptide libraries which can be screened for molecules that specifically bind polypeptides of the invention. Many libraries are known in the art that can be used, e.g., chemically synthesized libraries, recombinant (e.g., phage display libraries), and in vitro translation-based libraries. Examples of chemically synthesized libraries are described in Fodor et al., 1991, *Science* 251:767-773; Houghten et al., 1991, *Nature* 354:84-86; Lam et al., 1991, *Nature* 354:82-84; Medynski, 1994, *Bio/Technology* 12:709-710; Gallop et al., 1994, *J. Medicinal Chemistry* 37(9):1233-1251; Ohlmeyer et al., 1993, *Proc. Natl. Acad. Sci. USA* 90:10922-10926; Erb et al., 1994, *Proc. Natl. Acad. Sci. USA* 91:11422-11426; Houghten et al., 1992, *Biotechniques* 13:412; Jayawickreme et al., 1994, *Proc. Natl. Acad. Sci. USA* 91:1614-1618; Salmon et al., 1993, *Proc. Natl. Acad. Sci. USA* 90:11708-11712; PCT Publication No. WO 93/20242; and

Brenner and Lerner, 1992, Proc. Natl. Acad. Sci. USA 89:5381-5383.

[0737] Examples of phage display libraries are described in Scott and Smith, 1990, Science 249:386-390; Devlin et al., 1990, Science, 249:404-406; Christian, R. B., et al., 1992, J. Mol. Biol. 227:711-718; Lenstra, 1992, J. Immunol. Meth. 152:149-157; Kay et al., 1993, Gene 128:59-65; and PCT Publication No. WO 94/18318 dated Aug. 18, 1994.

[0738] In vitro translation-based libraries include but are not limited to those described in PCT Publication No. WO 91/05058 dated Apr. 18, 1991; and Mattheakis et al., 1994, Proc. Natl. Acad. Sci. USA 91:9022-9026.

[0739] By way of examples of nonpeptide libraries, a benzodiazepine library (see e.g., Bunin et al., 1994, Proc. Natl. Acad. Sci. USA 91:4708-4712) can be adapted for use. Peptoid libraries (Simon et al., 1992, Proc. Natl. Acad. Sci. USA 89:9367-9371) can also be used. Another example of a library that can be used, in which the amide functionalities in peptides have been permethylated to generate a chemically transformed combinatorial library, is described by Ostresh et al. (1994, Proc. Natl. Acad. Sci. USA 91:11138-11142).

[0740] The variety of non-peptide libraries that are useful in the present invention is great. For example, Ecker and Crooke, 1995, Bio/Technology 13:351-360 list benzodiazepines, hydantoins, piperazinediones, biphenyls, sugar analogs, beta-mercaptoketones, arylacetic acids, acylpiperidines, benzopyrans, cubanes, xanthines, aminimides, and oxazolones as among the chemical species that form the basis of various libraries.

[0741] Non-peptide libraries can be classified broadly into two types: decorated monomers and oligomers. Decorated monomer libraries employ a relatively simple scaffold structure upon which a variety functional groups is added. Often the scaffold will be a molecule with a known useful pharmacological activity. For example, the scaffold might be the benzodiazepine structure.

[0742] Non-peptide oligomer libraries utilize a large number of monomers that are assembled together in ways that create new shapes that depend on the order of the monomers. Among the monomer units that have been used are carbamates, pyrrolinones, and morpholinos. Peptoids, peptide-like oligomers in which the side chain is attached to the alpha amino group rather than the alpha carbon, form the basis of another version of non-peptide oligomer libraries. The first non-peptide oligomer libraries utilized a single type of monomer and thus contained a repeating backbone. Recent libraries have utilized more than one monomer, giving the libraries added flexibility.

[0743] Screening the libraries can be accomplished by any of a variety of commonly known methods. See, e.g., the following references, which disclose screening of peptide libraries: Parmley and Smith, 1989, *Adv. Exp. Med. Biol.* 251:215-218; Scott and Smith, 1990, *Science* 249:386-390; Fowlkes et al., 1992, *BioTechniques* 13:422-427; Oldenburg et al., 1992, *Proc. Natl. Acad. Sci. USA* 89:5393-5397; Yu et al., 1994, *Cell* 76:933-945; Staudt et al., 1988, *Science* 241:577-580; Bock et al., 1992, *Nature* 355:564-566; Tuerk et al., 1992, *Proc. Natl. Acad. Sci. USA* 89:6988-6992; Ellington et al., 1992, *Nature* 355:850-852; U.S. Pat. No. 5,096,815, U.S. Pat. No. 5,223,409, and U.S. Pat. No. 5,198,346, all to Ladner et al.; Rebar and Pabo, 1993, *Science* 263:671-673; and CT Publication No. WO 94/18318.

[0744] In a specific embodiment, screening to identify a molecule that binds polypeptides of the invention can be carried out by contacting the library members with polypeptides of the invention immobilized on a solid phase and harvesting those library members that bind to the polypeptides of the invention. Examples of such screening methods, termed "panning" techniques are described by way of example in Parmley and Smith, 1988, *Gene* 73:305-318; Fowlkes et al., 1992, *BioTechniques* 13:422-427; PCT Publication No. WO 94/18318; and in references cited herein.

[0745] In another embodiment, the two-hybrid system for selecting interacting proteins in yeast (Fields and Song, 1989, *Nature* 340:245-246; Chien et al., 1991, *Proc. Natl. Acad. Sci. USA* 88:9578-9582) can be used to identify molecules that specifically bind to polypeptides of the invention.

[0746] Where the binding molecule is a polypeptide, the polypeptide can be conveniently selected from any peptide library, including random peptide libraries, combinatorial peptide libraries, or biased peptide libraries. The term "biased" is used herein to mean that the method of generating the library is manipulated so as to restrict one or more parameters that govern the diversity of the resulting collection of molecules, in this case peptides.

[0747] Thus, a truly random peptide library would generate a collection of peptides in which the probability of finding a particular amino acid at a given position of the peptide is the same for all 20 amino acids. A bias can be introduced into the library, however, by specifying, for example, that a lysine occur every fifth amino acid or that positions 4, 8, and 9 of a decapeptide library be fixed to include only arginine. Clearly, many types of biases can be contemplated, and the present invention is not restricted to any particular bias. Furthermore, the present invention contemplates specific types of peptide libraries, such as



phage displayed peptide libraries and those that utilize a DNA construct comprising a lambda phage vector with a DNA insert.

[0748] As mentioned above, in the case of a binding molecule that is a polypeptide, the polypeptide may have about 6 to less than about 60 amino acid residues, preferably about 6 to about 10 amino acid residues, and most preferably, about 6 to about 22 amino acids. In another embodiment, a binding polypeptide has in the range of 15-100 amino acids, or 20-50 amino acids.

[0749] The selected binding polypeptide can be obtained by chemical synthesis or recombinant expression.

#### Other Activities

[0750] A polypeptide, polynucleotide, agonist, or antagonist of the present invention, as a result of the ability to stimulate vascular endothelial cell growth, may be employed in treatment for stimulating re-vascularization of ischemic tissues due to various disease conditions such as thrombosis, arteriosclerosis, and other cardiovascular conditions. The polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed to stimulate angiogenesis and limb regeneration, as discussed above.

[0751] A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed for treating wounds due to injuries, burns, post-operative tissue repair, and ulcers since they are mitogenic to various cells of different origins, such as fibroblast cells and skeletal muscle cells, and therefore, facilitate the repair or replacement of damaged or diseased tissue.

[0752] A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed stimulate neuronal growth and to treat and prevent neuronal damage which occurs in certain neuronal disorders or neuro-degenerative conditions such as Alzheimer's disease, Parkinson's disease, and AIDS-related complex. A polypeptide, polynucleotide, agonist, or antagonist of the present invention may have the ability to stimulate chondrocyte growth, therefore, they may be employed to enhance bone and periodontal regeneration and aid in tissue transplants or bone grafts.

[0753] A polypeptide, polynucleotide, agonist, or antagonist of the present invention may be also be employed to prevent skin aging due to sunburn by stimulating keratinocyte growth.

[0754] A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed for preventing hair loss, since FGF family members activate hair-forming cells and promotes melanocyte growth. Along the same lines, a polypeptide, polynucleotide, agonist, or antagonist of the present invention may be employed to stimulate growth and differentiation of hematopoietic cells and bone marrow cells when used in combination with other cytokines.

[0755] A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed to maintain organs before transplantation or for supporting cell culture of primary tissues. A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed for inducing tissue of mesodermal origin to differentiate in early embryos.

[0756] A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also increase or decrease the differentiation or proliferation of embryonic stem cells, besides, as discussed above, hematopoietic lineage.

[0757] A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be used to modulate mammalian characteristics, such as body height, weight, hair color, eye color, skin, percentage of adipose tissue, pigmentation, size, and shape (e.g., cosmetic surgery). Similarly, a polypeptide, polynucleotide, agonist, or antagonist of the present invention may be used to modulate mammalian metabolism affecting catabolism, anabolism, processing, utilization, and storage of energy.

[0758] A polypeptide, polynucleotide, agonist, or antagonist of the present invention may be used to change a mammal's mental state or physical state by influencing biorhythms, cardiac rhythms, depression (including depressive disorders), tendency for violence, tolerance for pain, reproductive capabilities (preferably by Activin or Inhibin-like activity), hormonal or endocrine levels, appetite, libido, memory, stress, or other cognitive qualities.

[0759] A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be used as a food additive or preservative, such as to increase or decrease storage capabilities, fat content, lipid, protein, carbohydrate, vitamins, minerals, cofactors or other nutritional components.

[0760] The above-recited applications have uses in a wide variety of hosts. Such hosts include, but are not limited to, human, murine, rabbit, goat, guinea pig, camel, horse, mouse, rat, hamster, pig, micro-pig, chicken, goat, cow, sheep, dog, cat, non-human primate, and

human. In specific embodiments, the host is a mouse, rabbit, goat, guinea pig, chicken, rat, hamster, pig, sheep, dog or cat. In preferred embodiments, the host is a mammal. In most preferred embodiments, the host is a human.

#### Other Preferred Embodiments

[0761] Other preferred embodiments of the claimed invention include an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least about 50 contiguous nucleotides in the nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, the nucleotide sequence as defined in column 5 of Table 1 or columns 8 and 9 of Table 2 or the complementary strand thereto, and/or cDNA contained in Clone ID NO:Z.

[0762] Also preferred is a nucleic acid molecule wherein said sequence of contiguous nucleotides is included in the nucleotide sequence of the portion of SEQ ID NO:X as defined in column 5, "ORF (From-To)", in Table 1.

[0763] Also preferred is a nucleic acid molecule wherein said sequence of contiguous nucleotides is included in the nucleotide sequence of the portion of SEQ ID NO:X as defined in columns 8 and 9, "NT From" and "NT To" respectively, in Table 2.

[0764] Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least about 150 contiguous nucleotides in the nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, the nucleotide sequence as defined in column 5 of Table 1 or columns 8 and 9 of Table 2 or the complementary strand thereto, and/or cDNA contained in Clone ID NO:Z.

[0765] Further preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least about 500 contiguous nucleotides in the nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, the nucleotide sequence as defined in column 5 of Table 1 or columns 8 and 9 of Table 2 or the complementary strand thereto, and/or cDNA contained in Clone ID NO:Z.

[0766] A further preferred embodiment is a nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to the nucleotide sequence of the portion of SEQ ID NO:X defined in column 5, "ORF (From-To)", in Table 1.

[0767] A further preferred embodiment is a nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to the nucleotide sequence of the portion of SEQ ID NO:X defined in columns 8 and 9, "NT From" and "NT To", respectively, in Table 2.

[0768] A further preferred embodiment is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to the complete nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, the nucleotide sequence as defined in column 5 of Table 1 or columns 8 and 9 of Table 2 or the complementary strand thereto, and/or cDNA contained in Clone ID NO:Z.

[0769] Also preferred is an isolated nucleic acid molecule which hybridizes under stringent hybridization conditions to a nucleic acid molecule comprising a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, the nucleotide sequence as defined in column 5 of Table 1 or columns 8 and 9 of Table 2 or the complementary strand thereto, and/or cDNA contained in Clone ID NO:Z, wherein said nucleic acid molecule which hybridizes does not hybridize under stringent hybridization conditions to a nucleic acid molecule having a nucleotide sequence consisting of only A residues or of only T residues.

[0770] Also preferred is a composition of matter comprising a DNA molecule which comprises the cDNA contained in Clone ID NO:Z.

[0771] Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least 50 contiguous nucleotides of the cDNA sequence contained in Clone ID NO:Z.

[0772] Also preferred is an isolated nucleic acid molecule, wherein said sequence of at least 50 contiguous nucleotides is included in the nucleotide sequence of an open reading frame sequence encoded by cDNA contained in Clone ID NO:Z.

[0773] Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to sequence of at least 150 contiguous nucleotides in the nucleotide sequence encoded by cDNA contained in Clone ID NO:Z.

[0774] A further preferred embodiment is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to sequence of at least 500 contiguous nucleotides in the nucleotide sequence encoded by cDNA contained in Clone ID NO:Z.

[0775] A further preferred embodiment is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to the complete nucleotide sequence encoded by cDNA contained in Clone ID NO:Z.

[0776] A further preferred embodiment is a method for detecting in a biological sample a nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto; the nucleotide sequence as defined in column 5 of Table 1 or columns 8 and 9 of Table 2 or the complementary strand thereto; and a nucleotide sequence encoded by cDNA contained in Clone ID NO:Z; which method comprises a step of comparing a nucleotide sequence of at least one nucleic acid molecule in said sample with a sequence selected from said group and determining whether the sequence of said nucleic acid molecule in said sample is at least 95% identical to said selected sequence.

[0777] Also preferred is the above method wherein said step of comparing sequences comprises determining the extent of nucleic acid hybridization between nucleic acid molecules in said sample and a nucleic acid molecule comprising said sequence selected from said group. Similarly, also preferred is the above method wherein said step of comparing sequences is performed by comparing the nucleotide sequence determined from a nucleic acid molecule in said sample with said sequence selected from said group. The nucleic acid molecules can comprise DNA molecules or RNA molecules.

[0778] A further preferred embodiment is a method for identifying the species, tissue or cell type of a biological sample which method comprises a step of detecting nucleic acid molecules in said sample, if any, comprising a nucleotide sequence that is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto; the nucleotide sequence as defined in column 5 of Table 1 or columns 8 and 9 of Table 2 or the complementary strand thereto; and a nucleotide sequence of the cDNA contained in Clone ID NO:Z.

[0779] The method for identifying the species, tissue or cell type of a biological sample can comprise a step of detecting nucleic acid molecules comprising a nucleotide sequence in a panel of at least two nucleotide sequences, wherein at least one sequence in said panel is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from said group.

[0780] Also preferred is a method for diagnosing in a subject a pathological condition associated with abnormal structure or expression of a nucleotide sequence of SEQ ID NO:X

or the complementary strand thereto; the nucleotide sequence as defined in column 5 of Table 1 or columns 8 and 9 of Table 2 or the complementary strand thereto; or the cDNA contained in Clone ID NO:Z which encodes a protein, wherein the method comprises a step of detecting in a biological sample obtained from said subject nucleic acid molecules, if any, comprising a nucleotide sequence that is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto; the nucleotide sequence as defined in column 5 of Table 1 or columns 8 and 9 of Table 2 or the complementary strand thereto; and a nucleotide sequence of cDNA contained in Clone ID NO:Z.

[0781] The method for diagnosing a pathological condition can comprise a step of detecting nucleic acid molecules comprising a nucleotide sequence in a panel of at least two nucleotide sequences, wherein at least one sequence in said panel is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from said group.

[0782] Also preferred is a composition of matter comprising isolated nucleic acid molecules wherein the nucleotide sequences of said nucleic acid molecules comprise a panel of at least two nucleotide sequences, wherein at least one sequence in said panel is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto; the nucleotide sequence as defined in column 5 of Table 1 or columns 8 and 9 of Table 2 or the complementary strand thereto; and a nucleotide sequence encoded by cDNA contained in Clone ID NO:Z. The nucleic acid molecules can comprise DNA molecules or RNA molecules.

[0783] Also preferred is a composition of matter comprising isolated nucleic acid molecules wherein the nucleotide sequences of said nucleic acid molecules comprise a DNA microarray or "chip" of at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 40, 50, 100, 150, 200, 250, 300, 500, 1000, 2000, 3000, or 4000 nucleotide sequences, wherein at least one sequence in said DNA microarray or "chip" is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X wherein X is any integer as defined in Table 1; and a nucleotide sequence encoded by a human cDNA clone identified by a cDNA "Clone ID" in Table 1.

[0784] Also preferred is an isolated polypeptide comprising an amino acid sequence at least 90% identical to a sequence of at least about 10 contiguous amino acids in the

polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and/or a polypeptide encoded by cDNA contained in Clone ID NO:Z.

[0785] Also preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence of at least about 30 contiguous amino acids in the amino acid sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and/or a polypeptide encoded by cDNA contained in Clone ID NO:Z.

[0786] Further preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence of at least about 100 contiguous amino acids in the amino acid sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and/or a polypeptide encoded by cDNA contained in Clone ID NO:Z.

[0787] Further preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to the complete amino acid sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and/or a polypeptide encoded by cDNA contained in Clone ID NO:Z.

[0788] Further preferred is an isolated polypeptide comprising an amino acid sequence at least 90% identical to a sequence of at least about 10 contiguous amino acids in the complete amino acid sequence of a polypeptide encoded by contained in Clone ID NO:Z.

[0789] Also preferred is a polypeptide wherein said sequence of contiguous amino acids is included in the amino acid sequence of a portion of said polypeptide encoded by cDNA contained in Clone ID NO:Z; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and/or the polypeptide sequence of SEQ ID NO:Y.

[0790] Also preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence of at least about 30 contiguous amino acids in the amino acid sequence of a polypeptide encoded by the cDNA contained in Clone ID NO:Z.

[0791] Also preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence of at least about 100 contiguous amino acids in the amino acid sequence of a polypeptide encoded by cDNA contained in Clone ID NO:Z.

[0792] Also preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to the amino acid sequence of a polypeptide encoded by the cDNA contained in Clone ID NO:Z.

[0793] Further preferred is an isolated antibody which binds specifically to a polypeptide comprising an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: a polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and a polypeptide encoded by the cDNA contained in Clone ID NO:Z.

[0794] Further preferred is a method for detecting in a biological sample a polypeptide comprising an amino acid sequence which is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: a polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and a polypeptide encoded by the cDNA contained in Clone ID NO:Z; which method comprises a step of comparing an amino acid sequence of at least one polypeptide molecule in said sample with a sequence selected from said group and determining whether the sequence of said polypeptide molecule in said sample is at least 90% identical to said sequence of at least 10 contiguous amino acids.

[0795] Also preferred is the above method wherein said step of comparing an amino acid sequence of at least one polypeptide molecule in said sample with a sequence selected from said group comprises determining the extent of specific binding of polypeptides in said sample to an antibody which binds specifically to a polypeptide comprising an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: a polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and a polypeptide encoded by the cDNA contained in Clone ID NO:Z.



[0796] Also preferred is the above method wherein said step of comparing sequences is performed by comparing the amino acid sequence determined from a polypeptide molecule in said sample with said sequence selected from said group.

[0797] Also preferred is a method for identifying the species, tissue or cell type of a biological sample which method comprises a step of detecting polypeptide molecules in said sample, if any, comprising an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and a polypeptide encoded by the cDNA contained in Clone ID NO:Z.

[0798] Also preferred is the above method for identifying the species, tissue or cell type of a biological sample, which method comprises a step of detecting polypeptide molecules comprising an amino acid sequence in a panel of at least two amino acid sequences, wherein at least one sequence in said panel is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the above group.

[0799] Also preferred is a method for diagnosing in a subject a pathological condition associated with abnormal structure or expression of a nucleic acid sequence identified in Table 1 or Table 2 encoding a polypeptide, which method comprises a step of detecting in a biological sample obtained from said subject polypeptide molecules comprising an amino acid sequence in a panel of at least two amino acid sequences, wherein at least one sequence in said panel is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and a polypeptide encoded by the cDNA contained in Clone ID NO:Z.

[0800] In any of these methods, the step of detecting said polypeptide molecules includes using an antibody.

[0801] Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a nucleotide sequence encoding a polypeptide wherein said polypeptide comprises an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group

consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and a polypeptide encoded by the cDNA contained in Clone ID NO:Z.

[0802] Also preferred is an isolated nucleic acid molecule, wherein said nucleotide sequence encoding a polypeptide has been optimized for expression of said polypeptide in a prokaryotic host.

[0803] Also preferred is a polypeptide molecule, wherein said polypeptide comprises an amino acid sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and a polypeptide encoded by the cDNA contained in Clone ID NO:Z.

[0804] Further preferred is a method of making a recombinant vector comprising inserting any of the above isolated nucleic acid molecule into a vector. Also preferred is the recombinant vector produced by this method. Also preferred is a method of making a recombinant host cell comprising introducing the vector into a host cell, as well as the recombinant host cell produced by this method.

[0805] Also preferred is a method of making an isolated polypeptide comprising culturing this recombinant host cell under conditions such that said polypeptide is expressed and recovering said polypeptide. Also preferred is this method of making an isolated polypeptide, wherein said recombinant host cell is a eukaryotic cell and said polypeptide is a human protein comprising an amino acid sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto; the polypeptide encoded by the nucleotide sequence as defined in columns 8 and 9 of Table 2; and a polypeptide encoded by the cDNA contained in Clone ID NO:Z. The isolated polypeptide produced by this method is also preferred.

[0806] Also preferred is a method of treatment of an individual in need of an increased level of a protein activity, which method comprises administering to such an individual a Therapeutic comprising an amount of an isolated polypeptide, polynucleotide, immunogenic fragment or analogue thereof, binding agent, antibody, or antigen binding fragment of the claimed invention effective to increase the level of said protein activity in said individual.

[0807] Also preferred is a method of treatment of an individual in need of a decreased level of a protein activity, which method comprised administering to such an individual a Therapeutic comprising an amount of an isolated polypeptide, polynucleotide, immunogenic fragment or analogue thereof, binding agent, antibody, or antigen binding fragment of the claimed invention effective to decrease the level of said protein activity in said individual.

[0808] Also preferred is a method of treatment of an individual in need of a specific delivery of toxic compositions to diseased cells (e.g., tumors, leukemias or lymphomas), which method comprises administering to such an individual a Therapeutic comprising an amount of an isolated polypeptide of the invention, including, but not limited to a binding agent, or antibody of the claimed invention that are associated with toxin or cytotoxic prodrugs.

[0809] Having generally described the invention, the same will be more readily understood by reference to the following examples, which are provided by way of illustration and are not intended as limiting.

### *Examples*

#### *Example 1: Isolation of a Selected cDNA Clone From the Deposited Sample*

[0810] Each Clone ID NO:Z is contained in a plasmid vector. Table 1 identifies the vectors used to construct the cDNA library from which each clone was isolated. In many cases, the vector used to construct the library is a phage vector from which a plasmid has been excised. The following correlates the related plasmid for each phage vector used in constructing the cDNA library. For example, where a particular clone is identified in Table 1 as being isolated in the vector "Lambda Zap," the corresponding deposited clone is in "pBluescript."

<u>Vector Used to Construct Library</u>	<u>Corresponding Deposited Plasmid</u>
Lambda Zap	pBluescript (pBS)
Uni-Zap XR	pBluescript (pBS)
Zap Express	pBK

lafmid BA

plafmid BA

pSport1

pSport1

pCMVSPORT 2.0

pCMVSPORT 2.0

pCMVSPORT 3.0

pCMVSPORT 3.0

pCR<sup>®</sup>2.1pCR<sup>®</sup>2.1

[0811] Vectors Lambda Zap (U.S. Patent Nos. 5,128,256 and 5,286,636), Uni-Zap XR (U.S. Patent Nos. 5,128, 256 and 5,286,636), Zap Express (U.S. Patent Nos. 5,128,256 and 5,286,636), pBluescript (pBS) (Short, J. M. et al., Nucleic Acids Res. 16:7583-7600 (1988); Alting-Mees, M. A. and Short, J. M., Nucleic Acids Res. 17:9494 (1989)) and pBK (Alting-Mees, M. A. et al., Strategies 5:58-61 (1992)) are commercially available from Stratagene Cloning Systems, Inc., 11011 N. Torrey Pines Road, La Jolla, CA, 92037. pBS contains an ampicillin resistance gene and pBK contains a neomycin resistance gene. Both can be transformed into E. coli strain XL-1 Blue, also available from Stratagene. pBS comes in 4 forms SK+, SK-, KS+ and KS. The S and K refers to the orientation of the polylinker to the T7 and T3 primer sequences which flank the polylinker region ("S" is for SacI and "K" is for KpnI which are the first sites on each respective end of the linker). "+" or "-" refer to the orientation of the fl origin of replication ("ori"), such that in one orientation, single stranded rescue initiated from the fl ori generates sense strand DNA and in the other, antisense.

[0812] Vectors pSport1, pCMVSPORT 2.0 and pCMVSPORT 3.0, were obtained from Life Technologies, Inc., P. O. Box 6009, Gaithersburg, MD 20897. All Sport vectors contain an ampicillin resistance gene and may be transformed into E. coli strain DH10B, also available from Life Technologies. (See, for instance, Gruber, C. E., et al., Focus 15:59 (1993)). Vector lafmid BA (Bento Soares, Columbia University, NY) contains an ampicillin resistance gene and can be transformed into E. coli strain XL-1 Blue. Vector pCR<sup>®</sup>2.1, which is available from Invitrogen, 1600 Faraday Avenue, Carlsbad, CA 92008, contains an ampicillin resistance gene and may be transformed into E. coli strain DH10B, available from Life Technologies. (See, for instance, Clark, J. M., Nuc. Acids Res. 16:9677-9686 (1988) and Mead, D. et al., Bio/Technology 9: (1991)). Preferably, a polynucleotide of the present invention does not comprise the phage vector sequences identified for the particular clone in Table 1, as well as the corresponding plasmid vector sequences designated above.

[0813] The deposited material assigned the ATCC Deposit Number PTA-1559 contain at least a plasmid for each Clone ID NO:Z.

[0814] Two nonlimiting examples are provided below for isolating a particular clone from the deposited sample of plasmid cDNAs in ATCC Deposit No. PTA-1559. First, a plasmid is directly isolated by screening the clones using a polynucleotide probe corresponding to the nucleotide sequence of SEQ ID NO:X.

[0815] Particularly, a specific polynucleotide with 30-40 nucleotides is synthesized using an Applied Biosystems DNA synthesizer according to the sequence reported. The oligonucleotide is labeled, for instance, with  $^{32}\text{P}$ - $\gamma$ -ATP using T4 polynucleotide kinase and purified according to routine methods. (E.g., Maniatis et al., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Press, Cold Spring, NY (1982)). The plasmid mixture is transformed into a suitable host, as indicated above (such as XL-1 Blue (Stratagene)) using techniques known to those of skill in the art, such as those provided by the vector supplier or in related publications or patents cited above. The transformants are plated on 1.5% agar plates (containing the appropriate selection agent, e.g., ampicillin) to a density of about 150 transformants (colonies) per plate. These plates are screened using Nylon membranes according to routine methods for bacterial colony screening (e.g., Sambrook et al., *Molecular Cloning: A Laboratory Manual*, 2nd Edit., (1989), Cold Spring Harbor Laboratory Press, pages 1.93 to 1.104), or other techniques known to those of skill in the art.

[0816] Alternatively, two primers of 17-20 nucleotides derived from both ends of the nucleotide sequence of SEQ ID NO:X are synthesized and used to amplify the desired cDNA using the deposited cDNA plasmid as a template. The polymerase chain reaction is carried out under routine conditions, for instance, in 25  $\mu\text{l}$  of reaction mixture with 0.5  $\mu\text{g}$  of the above cDNA template. A convenient reaction mixture is 1.5-5 mM  $\text{MgCl}_2$ , 0.01% (w/v) gelatin, 20  $\mu\text{M}$  each of dATP, dCTP, dGTP, dTTP, 25 pmol of each primer and 0.25 Unit of Taq polymerase. Thirty five cycles of PCR (denaturation at 94°C for 1 min; annealing at 55°C for 1 min; elongation at 72°C for 1 min) are performed with a Perkin-Elmer Cetus automated thermal cycler. The amplified product is analyzed by agarose gel electrophoresis and the DNA band with expected molecular weight is excised and purified. The PCR product is verified to be the selected sequence by subcloning and sequencing the DNA product.

[0817] Several methods are available for the identification of the 5' or 3' non-coding portions of a gene which may not be present in the deposited clone. These methods include but are not limited to, filter probing, clone enrichment using specific probes, and protocols similar or identical to 5' and 3' "RACE" protocols which are well known in the art. For instance, a method similar to 5' RACE is available for generating the missing 5' end of a desired full-length transcript. (Fromont-Racine et al., *Nucleic Acids Res.* 21(7):1683-1684 (1993)).

[0818] Briefly, a specific RNA oligonucleotide is ligated to the 5' ends of a population of RNA presumably containing full-length gene RNA transcripts. A primer set containing a primer specific to the ligated RNA oligonucleotide and a primer specific to a known sequence of the gene of interest is used to PCR amplify the 5' portion of the desired full-length gene. This amplified product may then be sequenced and used to generate the full length gene.

[0819] This above method starts with total RNA isolated from the desired source, although poly-A<sup>+</sup> RNA can be used. The RNA preparation can then be treated with phosphatase if necessary to eliminate 5' phosphate groups on degraded or damaged RNA which may interfere with the later RNA ligase step. The phosphatase should then be inactivated and the RNA treated with tobacco acid pyrophosphatase in order to remove the cap structure present at the 5' ends of messenger RNAs. This reaction leaves a 5' phosphate group at the 5' end of the cap cleaved RNA which can then be ligated to an RNA oligonucleotide using T4 RNA ligase.

[0820] This modified RNA preparation is used as a template for first strand cDNA synthesis using a gene specific oligonucleotide. The first strand synthesis reaction is used as a template for PCR amplification of the desired 5' end using a primer specific to the ligated RNA oligonucleotide and a primer specific to the known sequence of the gene of interest. The resultant product is then sequenced and analyzed to confirm that the 5' end sequence belongs to the desired gene.

***Example 2: Isolation of Genomic Clones Corresponding to a Polynucleotide***

[0821] A human genomic P1 library (Genomic Systems, Inc.) is screened by PCR using primers selected for the sequence corresponding to SEQ ID NO:X according to the method described in Example 1. (See also, Sambrook.)

***Example 3: Tissue specific expression analysis***

[0822] The Human Genome Sciences, Inc. (HGS) database is derived from sequencing tissue and/or disease specific cDNA libraries. Libraries generated from a particular tissue are selected and the specific tissue expression pattern of EST groups or assembled contigs within these libraries is determined by comparison of the expression patterns of those groups or contigs within the entire database. ESTs and assembled contigs which show tissue specific expression are selected.

[0823] The original clone from which the specific EST sequence was generated, or in the case of an assembled contig, the clone from which the 5' most EST sequence was generated, is obtained from the catalogued library of clones and the insert amplified by PCR using methods known in the art. The PCR product is denatured and then transferred in 96 or 384 well format to a nylon membrane (Schleicher and Scheull) generating an array filter of tissue specific clones. Housekeeping genes, maize genes, and known tissue specific genes are included on the filters. These targets can be used in signal normalization and to validate assay sensitivity. Additional targets are included to monitor probe length and specificity of hybridization.

[0824] Radioactively labeled hybridization probes are generated by first strand cDNA synthesis per the manufacturer's instructions (Life Technologies) from mRNA/RNA samples prepared from the specific tissue being analyzed (e.g., prostate, prostate cancer, ovarian, ovarian cancer, etc.). The hybridization probes are purified by gel exclusion chromatography, quantitated, and hybridized with the array filters in hybridization bottles at 65°C overnight. The filters are washed under stringent conditions and signals are captured using a Fuji phosphorimager.

[0825] Data is extracted using AIS software and following background subtraction, signal normalization is performed. This includes a normalization of filter-wide expression levels between different experimental runs. Genes that are differentially expressed in the tissue of interest are identified.

#### ***Example 4: Chromosomal Mapping of the Polynucleotides***

[0826] An oligonucleotide primer set is designed according to the sequence at the 5' end of SEQ ID NO:X. This primer preferably spans about 100 nucleotides. This primer set is then used in a polymerase chain reaction under the following set of conditions: 30 seconds, 95°C; 1 minute, 56°C; 1 minute, 70°C. This cycle is repeated 32 times followed by one 5 minute cycle at 70°C. Human, mouse, and hamster DNA is used as template in addition to a somatic cell hybrid panel containing individual chromosomes or chromosome fragments (Bios, Inc). The reactions are analyzed on either 8% polyacrylamide gels or 3.5 % agarose gels. Chromosome mapping is determined by the presence of an approximately 100 bp PCR fragment in the particular somatic cell hybrid.

#### ***Example 5: Bacterial Expression of a Polypeptide***

[0827] A polynucleotide encoding a polypeptide of the present invention is amplified using PCR oligonucleotide primers corresponding to the 5' and 3' ends of the DNA sequence, as outlined in Example 1, to synthesize insertion fragments. The primers used to amplify the cDNA insert should preferably contain restriction sites, such as BamHI and XbaI, at the 5' end of the primers in order to clone the amplified product into the expression vector. For example, BamHI and XbaI correspond to the restriction enzyme sites on the bacterial expression vector pQE-9. (Qiagen, Inc., Chatsworth, CA). This plasmid vector encodes antibiotic resistance (Amp<sup>r</sup>), a bacterial origin of replication (ori), an IPTG-regulatable promoter/operator (P/O), a ribosome binding site (RBS), a 6-histidine tag (6-His), and restriction enzyme cloning sites.



[0828] The pQE-9 vector is digested with BamHI and XbaI and the amplified fragment is ligated into the pQE-9 vector maintaining the reading frame initiated at the bacterial RBS. The ligation mixture is then used to transform the E. coli strain M15/rep4 (Qiagen, Inc.) which contains multiple copies of the plasmid pREP4, which expresses the lacI repressor and also confers kanamycin resistance (Kan<sup>r</sup>). Transformants are identified by their ability to grow on LB plates and ampicillin/kanamycin resistant colonies are selected. Plasmid DNA is isolated and confirmed by restriction analysis.

[0829] Clones containing the desired constructs are grown overnight (O/N) in liquid culture in LB media supplemented with both Amp (100 ug/ml) and Kan (25 ug/ml). The O/N culture is used to inoculate a large culture at a ratio of 1:100 to 1:250. The cells are grown to an optical density 600 (O.D.<sup>600</sup>) of between 0.4 and 0.6. IPTG (Isopropyl-B-D-thiogalactopyranoside) is then added to a final concentration of 1 mM. IPTG induces by inactivating the lacI repressor, clearing the P/O leading to increased gene expression.

[0830] Cells are grown for an extra 3 to 4 hours. Cells are then harvested by centrifugation (20 mins at 6000Xg). The cell pellet is solubilized in the chaotropic agent 6 Molar Guanidine HCl by stirring for 3-4 hours at 4°C. The cell debris is removed by centrifugation, and the supernatant containing the polypeptide is loaded onto a nickel-nitrilotri-acetic acid ("Ni-NTA") affinity resin column (available from QIAGEN, Inc., *supra*). Proteins with a 6 x His tag bind to the Ni-NTA resin with high affinity and can be purified in a simple one-step procedure (for details see: The QIAexpressionist (1995) QIAGEN, Inc., *supra*).

[0831] Briefly, the supernatant is loaded onto the column in 6 M guanidine-HCl, pH 8. The column is first washed with 10 volumes of 6 M guanidine-HCl, pH 8, then washed with 10 volumes of 6 M guanidine-HCl pH 6, and finally the polypeptide is eluted with 6 M guanidine-HCl, pH 5.

[0832] The purified protein is then renatured by dialyzing it against phosphate-buffered saline (PBS) or 50 mM Na-acetate, pH 6 buffer plus 200 mM NaCl. Alternatively, the protein can be successfully refolded while immobilized on the Ni-NTA column. The recommended conditions are as follows: renature using a linear 6M-1M urea gradient in 500 mM NaCl, 20% glycerol, 20 mM Tris/HCl pH 7.4, containing protease inhibitors. The renaturation should be performed over a period of 1.5 hours or more. After renaturation the

proteins are eluted by the addition of 250 mM imidazole. Imidazole is removed by a final dialyzing step against PBS or 50 mM sodium acetate pH 6 buffer plus 200 mM NaCl. The purified protein is stored at 4° C or frozen at -80° C.

[0833] In addition to the above expression vector, the present invention further includes an expression vector, called pHE4a (ATCC Accession Number 209645, deposited on February 25, 1998) which contains phage operator and promoter elements operatively linked to a polynucleotide of the present invention, called pHE4a. (ATCC Accession Number 209645, deposited on February 25, 1998.) This vector contains: 1) a neomycinphosphotransferase gene as a selection marker, 2) an *E. coli* origin of replication, 3) a T5 phage promoter sequence, 4) two lac operator sequences, 5) a Shine-Delgarno sequence, and 6) the lactose operon repressor gene (*lacIq*). The origin of replication (*oriC*) is derived from pUC19 (LTI, Gaithersburg, MD). The promoter and operator sequences are made synthetically.

[0834] DNA can be inserted into the pHE4a by restricting the vector with NdeI and XbaI, BamHI, XhoI, or Asp718, running the restricted product on a gel, and isolating the larger fragment (the stuffer fragment should be about 310 base pairs). The DNA insert is generated according to the PCR protocol described in Example 1, using PCR primers having restriction sites for NdeI (5' primer) and XbaI, BamHI, XhoI, or Asp718 (3' primer). The PCR insert is gel purified and restricted with compatible enzymes. The insert and vector are ligated according to standard protocols.

[0835] The engineered vector could easily be substituted in the above protocol to express protein in a bacterial system.

### ***Example 6: Purification of a Polypeptide from an Inclusion Body***

[0836] The following alternative method can be used to purify a polypeptide expressed in *E. coli* when it is present in the form of inclusion bodies. Unless otherwise specified, all of the following steps are conducted at 4-10°C.

[0837] Upon completion of the production phase of the *E. coli* fermentation, the cell culture is cooled to 4-10°C and the cells harvested by continuous centrifugation at 15,000 rpm (Heraeus Sepatech). On the basis of the expected yield of protein per unit weight of cell

paste and the amount of purified protein required, an appropriate amount of cell paste, by weight, is suspended in a buffer solution containing 100 mM Tris, 50 mM EDTA, pH 7.4. The cells are dispersed to a homogeneous suspension using a high shear mixer.

[0838] The cells are then lysed by passing the solution through a microfluidizer (Microfluidics, Corp. or APV Gaulin, Inc.) twice at 4000-6000 psi. The homogenate is then mixed with NaCl solution to a final concentration of 0.5 M NaCl, followed by centrifugation at 7000 xg for 15 min. The resultant pellet is washed again using 0.5M NaCl, 100 mM Tris, 50 mM EDTA, pH 7.4.

[0839] The resulting washed inclusion bodies are solubilized with 1.5 M guanidine hydrochloride (GuHCl) for 2-4 hours. After 7000 xg centrifugation for 15 min., the pellet is discarded and the polypeptide containing supernatant is incubated at 4°C overnight to allow further GuHCl extraction.

[0840] Following high speed centrifugation (30,000 xg) to remove insoluble particles, the GuHCl solubilized protein is refolded by quickly mixing the GuHCl extract with 20 volumes of buffer containing 50 mM sodium, pH 4.5, 150 mM NaCl, 2 mM EDTA by vigorous stirring. The refolded diluted protein solution is kept at 4°C without mixing for 12 hours prior to further purification steps.

[0841] To clarify the refolded polypeptide solution, a previously prepared tangential filtration unit equipped with 0.16 µm membrane filter with appropriate surface area (e.g., Filtron), equilibrated with 40 mM sodium acetate, pH 6.0 is employed. The filtered sample is loaded onto a cation exchange resin (e.g., Poros HS-50, Perseptive Biosystems). The column is washed with 40 mM sodium acetate, pH 6.0 and eluted with 250 mM, 500 mM, 1000 mM, and 1500 mM NaCl in the same buffer, in a stepwise manner. The absorbance at 280 nm of the effluent is continuously monitored. Fractions are collected and further analyzed by SDS-PAGE.

[0842] Fractions containing the polypeptide are then pooled and mixed with 4 volumes of water. The diluted sample is then loaded onto a previously prepared set of tandem columns of strong anion (Poros HQ-50, Perseptive Biosystems) and weak anion (Poros CM-20, Perseptive Biosystems) exchange resins. The columns are equilibrated with 40 mM sodium acetate, pH 6.0. Both columns are washed with 40 mM sodium acetate, pH 6.0, 200 mM NaCl. The CM-20 column is then eluted using a 10 column volume linear gradient ranging

from 0.2 M NaCl, 50 mM sodium acetate, pH 6.0 to 1.0 M NaCl, 50 mM sodium acetate, pH 6.5. Fractions are collected under constant  $A_{280}$  monitoring of the effluent. Fractions containing the polypeptide (determined, for instance, by 16% SDS-PAGE) are then pooled.

[0843] The resultant polypeptide should exhibit greater than 95% purity after the above refolding and purification steps. No major contaminant bands should be observed from Commassie blue stained 16% SDS-PAGE gel when 5  $\mu$ g of purified protein is loaded. The purified protein can also be tested for endotoxin/LPS contamination, and typically the LPS content is less than 0.1 ng/ml according to LAL assays.

### ***Example 7: Cloning and Expression of a Polypeptide in a Baculovirus***

#### ***Expression System***

[0844] In this example, the plasmid shuttle vector pA2 is used to insert a polynucleotide into a baculovirus to express a polypeptide. This expression vector contains the strong polyhedrin promoter of the *Autographa californica* nuclear polyhedrosis virus (AcMNPV) followed by convenient restriction sites such as BamHI, Xba I and Asp718. The polyadenylation site of the simian virus 40 ("SV40") is used for efficient polyadenylation. For easy selection of recombinant virus, the plasmid contains the beta-galactosidase gene from *E. coli* under control of a weak *Drosophila* promoter in the same orientation, followed by the polyadenylation signal of the polyhedrin gene. The inserted genes are flanked on both sides by viral sequences for cell-mediated homologous recombination with wild-type viral DNA to generate a viable virus that express the cloned polynucleotide.

[0845] Many other baculovirus vectors can be used in place of the vector above, such as pAc373, pVL941, and pAcIM1, as one skilled in the art would readily appreciate, as long as the construct provides appropriately located signals for transcription, translation, secretion and the like, including a signal peptide and an in-frame AUG as required. Such vectors are described, for instance, in Luckow et al., *Virology* 170:31-39 (1989).

[0846] Specifically, the cDNA sequence contained in the deposited clone, including the AUG initiation codon, is amplified using the PCR protocol described in Example 1. If a naturally occurring signal sequence is used to produce the polypeptide of the present invention, the pA2 vector does not need a second signal peptide. Alternatively, the vector

can be modified (pA2 GP) to include a baculovirus leader sequence, using the standard methods described in Summers et al., "A Manual of Methods for Baculovirus Vectors and Insect Cell Culture Procedures," Texas Agricultural Experimental Station Bulletin No. 1555 (1987).

[0847] The amplified fragment is isolated from a 1% agarose gel using a commercially available kit ("GeneClean," BIO 101 Inc., La Jolla, Ca.). The fragment then is digested with appropriate restriction enzymes and again purified on a 1% agarose gel.

[0848] The plasmid is digested with the corresponding restriction enzymes and optionally, can be dephosphorylated using calf intestinal phosphatase, using routine procedures known in the art. The DNA is then isolated from a 1% agarose gel using a commercially available kit ("GeneClean" BIO 101 Inc., La Jolla, Ca.).

[0849] The fragment and the dephosphorylated plasmid are ligated together with T4 DNA ligase. *E. coli* HB101 or other suitable *E. coli* hosts such as XL-1 Blue (Stratagene Cloning Systems, La Jolla, CA) cells are transformed with the ligation mixture and spread on culture plates. Bacteria containing the plasmid are identified by digesting DNA from individual colonies and analyzing the digestion product by gel electrophoresis. The sequence of the cloned fragment is confirmed by DNA sequencing.

[0850] Five  $\mu$ g of a plasmid containing the polynucleotide is co-transfected with 1.0  $\mu$ g of a commercially available linearized baculovirus DNA ("BaculoGold™ baculovirus DNA, Pharmingen, San Diego, CA), using the lipofection method described by Felgner et al., Proc. Natl. Acad. Sci. USA 84:7413-7417 (1987). One  $\mu$ g of BaculoGold™ virus DNA and 5  $\mu$ g of the plasmid are mixed in a sterile well of a microtiter plate containing 50  $\mu$ l of serum-free Grace's medium (Life Technologies Inc., Gaithersburg, MD). Afterwards, 10  $\mu$ l Lipofectin plus 90  $\mu$ l Grace's medium are added, mixed and incubated for 15 minutes at room temperature. Then the transfection mixture is added drop-wise to Sf9 insect cells (ATCC CRL 1711) seeded in a 35 mm tissue culture plate with 1 ml Grace's medium without serum. The plate is then incubated for 5 hours at 27° C. The transfection solution is then removed from the plate and 1 ml of Grace's insect medium supplemented with 10% fetal calf serum is added. Cultivation is then continued at 27° C for four days.

[0851] After four days the supernatant is collected and a plaque assay is performed, as described by Summers and Smith, *supra*. An agarose gel with "Blue Gal" (Life Technologies Inc., Gaithersburg) is used to allow easy identification and isolation of gal-expressing clones,

which produce blue-stained plaques. (A detailed description of a "plaque assay" of this type can also be found in the user's guide for insect cell culture and baculovirology distributed by Life Technologies Inc., Gaithersburg, page 9-10.) After appropriate incubation, blue stained plaques are picked with the tip of a micropipettor (e.g., Eppendorf). The agar containing the recombinant viruses is then resuspended in a microcentrifuge tube containing 200  $\mu$ l of Grace's medium and the suspension containing the recombinant baculovirus is used to infect Sf9 cells seeded in 35 mm dishes. Four days later the supernatants of these culture dishes are harvested and then they are stored at 4° C.

[0852] To verify the expression of the polypeptide, Sf9 cells are grown in Grace's medium supplemented with 10% heat-inactivated FBS. The cells are infected with the recombinant baculovirus containing the polynucleotide at a multiplicity of infection ("MOI") of about 2. If radiolabeled proteins are desired, 6 hours later the medium is removed and is replaced with SF900 II medium minus methionine and cysteine (available from Life Technologies Inc., Rockville, MD). After 42 hours, 5  $\mu$ Ci of  $^{35}$ S-methionine and 5  $\mu$ Ci  $^{35}$ S-cysteine (available from Amersham) are added. The cells are further incubated for 16 hours and then are harvested by centrifugation. The proteins in the supernatant as well as the intracellular proteins are analyzed by SDS-PAGE followed by autoradiography (if radiolabeled).

[0853] Microsequencing of the amino acid sequence of the amino terminus of purified protein may be used to determine the amino terminal sequence of the produced protein.

### ***Example 8: Expression of a Polypeptide in Mammalian Cells***

[0854] The polypeptide of the present invention can be expressed in a mammalian cell. A typical mammalian expression vector contains a promoter element, which mediates the initiation of transcription of mRNA, a protein coding sequence, and signals required for the termination of transcription and polyadenylation of the transcript. Additional elements include enhancers, Kozak sequences and intervening sequences flanked by donor and acceptor sites for RNA splicing. Highly efficient transcription is achieved with the early and late promoters from SV40, the long terminal repeats (LTRs) from Retroviruses, e.g., RSV, HTLV1, HIV1 and the early promoter of the cytomegalovirus (CMV). However, cellular elements can also be used (e.g., the human actin promoter).

[0855] Suitable expression vectors for use in practicing the present invention include, for example, vectors such as pSVL and pMSG (Pharmacia, Uppsala, Sweden), pRSVcat (ATCC 37152), pSV2dhfr (ATCC 37146), pBC12MI (ATCC 67109), pCMVSPORT 2.0, and pCMVSPORT 3.0. Mammalian host cells that could be used include, human Hela, 293, H9 and Jurkat cells, mouse NIH3T3 and C127 cells, Cos 1, Cos 7 and CV1, quail QC1-3 cells, mouse L cells and Chinese hamster ovary (CHO) cells.

[0856] Alternatively, the polypeptide can be expressed in stable cell lines containing the polynucleotide integrated into a chromosome. The co-transfection with a selectable marker such as DHFR, gpt, neomycin, or hygromycin allows the identification and isolation of the transfected cells.

[0857] The transfected gene can also be amplified to express large amounts of the encoded protein. The DHFR (dihydrofolate reductase) marker is useful in developing cell lines that carry several hundred or even several thousand copies of the gene of interest. (See, e.g., Alt, F. W., et al., *J. Biol. Chem.* 253:1357-1370 (1978); Hamlin, J. L. and Ma, C., *Biochem. et Biophys. Acta*, 1097:107-143 (1990); Page, M. J. and Sydenham, M. A., *Biotechnology* 9:64-68 (1991)). Another useful selection marker is the enzyme glutamine synthase (GS) (Murphy et al., *Biochem J.* 227:277-279 (1991); Bebbington et al., *Bio/Technology* 10:169-175 (1992)). Using these markers, the mammalian cells are grown in selective medium and the cells with the highest resistance are selected. These cell lines contain the amplified gene(s) integrated into a chromosome. Chinese hamster ovary (CHO) and NSO cells are often used for the production of proteins.

[0858] Derivatives of the plasmid pSV2-dhfr (ATCC Accession No. 37146), the expression vectors pC4 (ATCC Accession No. 209646) and pC6 (ATCC Accession No. 209647) contain the strong promoter (LTR) of the Rous Sarcoma Virus (Cullen et al., *Molecular and Cellular Biology*, 438-447 (March, 1985)) plus a fragment of the CMV-enhancer (Boshart et al., *Cell* 41:521-530 (1985)). Multiple cloning sites, e.g., with the restriction enzyme cleavage sites BamHI, XbaI and Asp718, facilitate the cloning of the gene of interest. The vectors also contain the 3' intron, the polyadenylation and termination signal of the rat preproinsulin gene, and the mouse DHFR gene under control of the SV40 early promoter.

[0859] Specifically, the plasmid pC6, for example, is digested with appropriate restriction enzymes and then dephosphorylated using calf intestinal phosphates by procedures known in the art. The vector is then isolated from a 1% agarose gel.

[0860] A polynucleotide of the present invention is amplified according to the protocol outlined in Example 1. If a naturally occurring signal sequence is used to produce the polypeptide of the present invention, the vector does not need a second signal peptide. Alternatively, if a naturally occurring signal sequence is not used, the vector can be modified to include a heterologous signal sequence. (See, e.g., International Publication No. WO 96/34891.)

[0861] The amplified fragment is isolated from a 1% agarose gel using a commercially available kit ("GeneClean," BIO 101 Inc., La Jolla, Ca.). The fragment then is digested with appropriate restriction enzymes and again purified on a 1% agarose gel.

[0862] The amplified fragment is then digested with the same restriction enzyme and purified on a 1% agarose gel. The isolated fragment and the dephosphorylated vector are then ligated with T4 DNA ligase. *E. coli* HB101 or XL-1 Blue cells are then transformed and bacteria are identified that contain the fragment inserted into plasmid pC6 using, for instance, restriction enzyme analysis.

[0863] Chinese hamster ovary cells lacking an active DHFR gene is used for transfection. Five  $\mu$ g of the expression plasmid pC6 or pC4 is cotransfected with 0.5  $\mu$ g of the plasmid pSVneo using lipofectin (Felgner et al., *supra*). The plasmid pSV2-neo contains a dominant selectable marker, the *neo* gene from Tn5 encoding an enzyme that confers resistance to a group of antibiotics including G418. The cells are seeded in alpha minus MEM supplemented with 1 mg/ml G418. After 2 days, the cells are trypsinized and seeded in hybridoma cloning plates (Greiner, Germany) in alpha minus MEM supplemented with 10, 25, or 50 ng/ml of methotrexate plus 1 mg/ml G418. After about 10-14 days single clones are trypsinized and then seeded in 6-well petri dishes or 10 ml flasks using different concentrations of methotrexate (50 nM, 100 nM, 200 nM, 400 nM, 800 nM). Clones growing at the highest concentrations of methotrexate are then transferred to new 6-well plates containing even higher concentrations of methotrexate (1  $\mu$ M, 2  $\mu$ M, 5  $\mu$ M, 10 mM, 20 mM). The same procedure is repeated until clones are obtained which grow at a concentration of 100 - 200  $\mu$ M. Expression of the desired gene product is analyzed, for instance, by SDS-PAGE and Western blot or by reversed phase HPLC analysis.



### ***Example 9: Protein Fusions***

[0864] The polypeptides of the present invention are preferably fused to other proteins. These fusion proteins can be used for a variety of applications. For example, fusion of the present polypeptides to His-tag, HA-tag, protein A, IgG domains, and maltose binding protein facilitates purification. (See Example 5; see also EP A 394,827; Traunecker, et al., Nature 331:84-86 (1988)). Similarly, fusion to IgG-1, IgG-3, and albumin increases the half-life time *in vivo*. Nuclear localization signals fused to the polypeptides of the present invention can target the protein to a specific subcellular localization, while covalent heterodimer or homodimers can increase or decrease the activity of a fusion protein. Fusion proteins can also create chimeric molecules having more than one function. Finally, fusion proteins can increase solubility and/or stability of the fused protein compared to the non-fused protein. All of the types of fusion proteins described above can be made by modifying the following protocol, which outlines the fusion of a polypeptide to an IgG molecule, or the protocol described in Example 5.

[0865] Briefly, the human Fc portion of the IgG molecule can be PCR amplified, using primers that span the 5' and 3' ends of the sequence described below. These primers also should have convenient restriction enzyme sites that will facilitate cloning into an expression vector, preferably a mammalian expression vector.

[0866] For example, if pC4 (ATCC Accession No. 209646) is used, the human Fc portion can be ligated into the BamHI cloning site. Note that the 3' BamHI site should be destroyed. Next, the vector containing the human Fc portion is re-restricted with BamHI, linearizing the vector, and a polynucleotide of the present invention, isolated by the PCR protocol described in Example 1, is ligated into this BamHI site. Note that the polynucleotide is cloned without a stop codon, otherwise a fusion protein will not be produced.

[0867] If the naturally occurring signal sequence is used to produce the polypeptide of the present invention, pC4 does not need a second signal peptide. Alternatively, if the naturally occurring signal sequence is not used, the vector can be modified to include a heterologous signal sequence. (See, e.g., International Publication No. WO 96/34891.)

## Human IgG Fc region:

GGGATCCGGAGCCCAAATCTTCTGACAAAACCTCACACATGCCACCGT  
 GCCCAGCACCTGAATTTCGAGGGTGCACCGTCAGTCTTCCTCTTCCCCC  
 AAAACCCAAGGACACCCCTCATGATCTCCCGGACTCCTGAGGTCACATG  
 CGTGGTGGTGGACGTAAGCCACGAAGACCCTGAGGTCAAGTTCAACTG  
 GTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCGCGGG  
 AGGAGCAGTACAACAGCACGTACCGTGTGGTCAGCGTCCTACCGTCC  
 TGCACCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCA  
 ACAAAGCCCTCCCAACCCCCATCGAGAAAACCATCTCCAAAGCCAAAG  
 GGCAGCCCCGAGAACCACAGGTGTACACCCTGCCCCCATCCCGGGATG  
 AGCTGACCAAGAACCAGGTCAGCCTGACCTGCCTGGTCAAAGGCTTCT  
 ATCCAAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAG  
 AACAACCTACAAGACCACGCCTCCCGTGCTGGACTCCGACGGCTCCTTCT  
 TCCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGA  
 ACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACAC  
 GCAGAAGAGCCTCTCCCTGTCTCCGGGTAAATGAGTGCGACGGCCGCG  
 ACTCTAGAGGAT (SEQ ID NO: 1)

***Example 10: Production of an Antibody from a Polypeptide****Hybridoma Technology*

[0868] The antibodies of the present invention can be prepared by a variety of methods. (See, Current Protocols, Chapter 2.) As one example of such methods, cells expressing a polypeptide of the invention are administered to an animal to induce the production of sera containing polyclonal antibodies. In a preferred method, a preparation of a polypeptide of the invention is prepared and purified to render it substantially free of natural contaminants. Such a preparation is then introduced into an animal in order to produce polyclonal antisera of greater specific activity.

[0869] Monoclonal antibodies specific for a polypeptide of the invention are prepared using hybridoma technology (Kohler et al., Nature 256:495 (1975); Kohler et al., Eur. J. Immunol. 6:511 (1976); Kohler et al., Eur. J. Immunol. 6:292 (1976); Hammerling et al., in:

Monoclonal Antibodies and T-Cell Hybridomas, Elsevier, N.Y., pp. 563-681 (1981)). In general, an animal (preferably a mouse) is immunized with a polypeptide of the invention or, more preferably, with a secreted polypeptide of the invention expressing cell. Such polypeptide-expressing cells are cultured in any suitable tissue culture medium, preferably in Earle's modified Eagle's medium supplemented with 10% fetal bovine serum (inactivated at about 56°C), and supplemented with about 10 g/l of nonessential amino acids, about 1,000 U/ml of penicillin, and about 100 µg/ml of streptomycin.

[0870] The splenocytes of such mice are extracted and fused with a suitable myeloma cell line. Any suitable myeloma cell line may be employed in accordance with the present invention; however, it is preferable to employ the parent myeloma cell line (SP2O), available from the ATCC. After fusion, the resulting hybridoma cells are selectively maintained in HAT medium, and then cloned by limiting dilution as described by Wands et al. (Gastroenterology 80:225-232 (1981)). The hybridoma cells obtained through such a selection are then assayed to identify clones which secrete antibodies capable of binding the polypeptide of the invention.

[0871] Alternatively, additional antibodies capable of binding to a polypeptide of the invention can be produced in a two-step procedure using anti-idiotypic antibodies. Such a method makes use of the fact that antibodies are themselves antigens, and therefore, it is possible to obtain an antibody which binds to a second antibody. In accordance with this method, protein specific antibodies are used to immunize an animal, preferably a mouse. The splenocytes of such an animal are then used to produce hybridoma cells, and the hybridoma cells are screened to identify clones which produce an antibody whose ability to bind to an antibody specific to a polypeptide of the invention can be blocked by that polypeptide of the invention. Such antibodies comprise anti-idiotypic antibodies to the polypeptide of the invention-specific antibody and are used to immunize an animal to induce formation of further antibodies specific to that polypeptide of the invention.

[0872] For *in vivo* use of antibodies in humans, an antibody is "humanized". Such antibodies can be produced using genetic constructs derived from hybridoma cells producing the monoclonal antibodies described above. Methods for producing chimeric and humanized antibodies are known in the art and are discussed herein. (See, for review, Morrison, Science 229:1202 (1985); Oi et al., BioTechniques 4:214 (1986); Cabilly et al., U.S. Patent No. 4,816,567; Taniguchi et al., EP 171496; Morrison et al., EP 173494; Neuberger et al., WO

8601533; Robinson et al., International Publication No. WO 8702671; Boulianne et al., Nature 312:643 (1984); Neuberger et al., Nature 314:268 (1985)).

*Isolation Of Antibody Fragments Directed Against a Polypeptide of the Invention From A Library Of scFvs*

[0873] Naturally occurring V-genes isolated from human PBLs are constructed into a library of antibody fragments which contain reactivities against a polypeptide of the invention to which the donor may or may not have been exposed (see e.g., U.S. Patent 5,885,793 incorporated herein by reference in its entirety).

[0874] *Rescue of the Library.* A library of scFvs is constructed from the RNA of human PBLs as described in International Publication No. WO 92/01047. To rescue phage displaying antibody fragments, approximately  $10^9$  *E. coli* harboring the phagemid are used to inoculate 50 ml of 2xTY containing 1% glucose and 100 µg/ml of ampicillin (2xTY-AMP-GLU) and grown to an O.D. of 0.8 with shaking. Five ml of this culture is used to inoculate 50 ml of 2xTY-AMP-GLU,  $2 \times 10^8$  TU of delta gene 3 helper (M13 delta gene III, see International Publication No. WO 92/01047) are added and the culture incubated at 37°C for 45 minutes without shaking and then at 37°C for 45 minutes with shaking. The culture is centrifuged at 4000 r.p.m. for 10 min. and the pellet resuspended in 2 liters of 2xTY containing 100 µg/ml ampicillin and 50 µg/ml kanamycin and grown overnight. Phage are prepared as described in International Publication No. WO 92/01047.

[0875] M13 delta gene III is prepared as follows: M13 delta gene III helper phage does not encode gene III protein, hence the phage(mid) displaying antibody fragments have a greater avidity of binding to antigen. Infectious M13 delta gene III particles are made by growing the helper phage in cells harboring a pUC19 derivative supplying the wild type gene III protein during phage morphogenesis. The culture is incubated for 1 hour at 37°C without shaking and then for a further hour at 37°C with shaking. Cells are spun down (IEC-Centra 8,400 r.p.m. for 10 min), resuspended in 300 ml 2xTY broth containing 100 µg ampicillin/ml and 25 µg kanamycin/ml (2xTY-AMP-KAN) and grown overnight, shaking at 37°C. Phage particles are purified and concentrated from the culture medium by two PEG-precipitations (Sambrook et al., 1990), resuspended in 2 ml PBS and passed through a 0.45 µm filter (Minisart NML; Sartorius) to give a final concentration of approximately  $10^{13}$  transducing units/ml (ampicillin-resistant clones).

[0876] *Panning of the Library.* Immuntubes (Nunc) are coated overnight in PBS with 4 ml of either 100 µg/ml or 10 µg/ml of a polypeptide of the present invention. Tubes are blocked with 2% Marvel-PBS for 2 hours at 37°C and then washed 3 times in PBS. Approximately  $10^{13}$  TU of phage is applied to the tube and incubated for 30 minutes at room temperature tumbling on an over and under turntable and then left to stand for another 1.5 hours. Tubes are washed 10 times with PBS 0.1% Tween-20 and 10 times with PBS. Phage are eluted by adding 1 ml of 100 mM triethylamine and rotating 15 minutes on an under and over turntable after which the solution is immediately neutralized with 0.5 ml of 1.0M Tris-HCl, pH 7.4. Phage are then used to infect 10 ml of mid-log E. coli TG1 by incubating eluted phage with bacteria for 30 minutes at 37°C. The E. coli are then plated on TYE plates containing 1% glucose and 100 µg/ml ampicillin. The resulting bacterial library is then rescued with delta gene 3 helper phage as described above to prepare phage for a subsequent round of selection. This process is then repeated for a total of 4 rounds of affinity purification with tube-washing increased to 20 times with PBS, 0.1% Tween-20 and 20 times with PBS for rounds 3 and 4.

[0877] *Characterization of Binders.* Eluted phage from the 3rd and 4th rounds of selection are used to infect E. coli HB 2151 and soluble scFv is produced (Marks, et al., 1991) from single colonies for assay. ELISAs are performed with microtitre plates coated with either 10 pg/ml of the polypeptide of the present invention in 50 mM bicarbonate pH 9.6. Clones positive in ELISA are further characterized by PCR fingerprinting (see, e.g., International Publication No. WO 92/01047) and then by sequencing. These ELISA positive clones may also be further characterized by techniques known in the art, such as, for example, epitope mapping, binding affinity, receptor signal transduction, ability to block or competitively inhibit antibody/antigen binding, and competitive agonistic or antagonistic activity.

***Example 11: Method of Determining Alterations in a Gene Corresponding to a Polynucleotide***

[0878] RNA isolated from entire families or individual patients presenting with a phenotype of interest (such as a disease) is isolated. cDNA is then generated from these RNA samples using protocols known in the art. (See, Sambrook.) The cDNA is then used as a template for PCR, employing primers surrounding regions of interest in SEQ ID NO:X; and/or the nucleotide sequence of the cDNA contained in Clone ID NO:Z. Suggested PCR conditions consist of 35 cycles at 95 degrees C for 30 seconds; 60-120 seconds at 52-58 degrees C; and 60-120 seconds at 70 degrees C, using buffer solutions described in Sidransky et al., Science 252:706 (1991).

[0879] PCR products are then sequenced using primers labeled at their 5' end with T4 polynucleotide kinase, employing SequiTherm Polymerase (Epicentre Technologies). The intron-exon boundaries of selected exons is also determined and genomic PCR products analyzed to confirm the results. PCR products harboring suspected mutations are then cloned and sequenced to validate the results of the direct sequencing.

[0880] PCR products are cloned into T-tailed vectors as described in Holton et al., Nucleic Acids Research, 19:1156 (1991) and sequenced with T7 polymerase (United States Biochemical). Affected individuals are identified by mutations not present in unaffected individuals.

[0881] Genomic rearrangements are also observed as a method of determining alterations in a gene corresponding to a polynucleotide. Genomic clones isolated according to Example 2 are nick-translated with digoxigenin deoxy-uridine 5'-triphosphate (Boehringer Mannheim), and FISH performed as described in Johnson et al., Methods Cell Biol. 35:73-99 (1991). Hybridization with the labeled probe is carried out using a vast excess of human cot-1 DNA for specific hybridization to the corresponding genomic locus.

[0882] Chromosomes are counterstained with 4,6-diamino-2-phenylidole and propidium iodide, producing a combination of C- and R-bands. Aligned images for precise mapping are obtained using a triple-band filter set (Chroma Technology, Brattleboro, VT) in combination with a cooled charge-coupled device camera (Photometrics, Tucson, AZ) and variable excitation wavelength filters. (Johnson et al., Genet. Anal. Tech. Appl., 8:75 (1991)). Image

collection, analysis and chromosomal fractional length measurements are performed using the ISee Graphical Program System. (Inovision Corporation, Durham, NC.) Chromosome alterations of the genomic region hybridized by the probe are identified as insertions, deletions, and translocations. These alterations are used as a diagnostic marker for an associated disease.

***Example 12: Method of Detecting Abnormal Levels of a Polypeptide in a Biological Sample***

[0883] A polypeptide of the present invention can be detected in a biological sample, and if an increased or decreased level of the polypeptide is detected, this polypeptide is a marker for a particular phenotype. Methods of detection are numerous, and thus, it is understood that one skilled in the art can modify the following assay to fit their particular needs.

[0884] For example, antibody-sandwich ELISAs are used to detect polypeptides in a sample, preferably a biological sample. Wells of a microtiter plate are coated with specific antibodies, at a final concentration of 0.2 to 10 ug/ml. The antibodies are either monoclonal or polyclonal and are produced by the method described in Example 10. The wells are blocked so that non-specific binding of the polypeptide to the well is reduced.

[0885] The coated wells are then incubated for > 2 hours at RT with a sample containing the polypeptide. Preferably, serial dilutions of the sample should be used to validate results. The plates are then washed three times with deionized or distilled water to remove unbound polypeptide.

[0886] Next, 50 ul of specific antibody-alkaline phosphatase conjugate, at a concentration of 25-400 ng, is added and incubated for 2 hours at room temperature. The plates are again washed three times with deionized or distilled water to remove unbound conjugate.

[0887] Add 75 ul of 4-methylumbelliferyl phosphate (MUP) or p-nitrophenyl phosphate (NPP) substrate solution to each well and incubate 1 hour at room temperature. Measure the reaction by a microtiter plate reader. Prepare a standard curve, using serial dilutions of a control sample, and plot polypeptide concentration on the X-axis (log scale) and fluorescence or absorbance of the Y-axis (linear scale). Interpolate the concentration of the polypeptide in the sample using the standard curve.

### ***Example 13: Formulation***

[0888] The invention also provides methods of treatment and/or prevention of diseases or disorders (such as, for example, any one or more of the diseases or disorders disclosed herein) by administration to a subject of an effective amount of a Therapeutic. By therapeutic is meant polynucleotides or polypeptides of the invention (including fragments and variants), agonists or antagonists thereof, and/or antibodies thereto, in combination with a pharmaceutically acceptable carrier type (e.g., a sterile carrier).

[0889] The Therapeutic will be formulated and dosed in a fashion consistent with good medical practice, taking into account the clinical condition of the individual patient (especially the side effects of treatment with the Therapeutic alone), the site of delivery, the method of administration, the scheduling of administration, and other factors known to practitioners. The "effective amount" for purposes herein is thus determined by such considerations.

[0890] As a general proposition, the total pharmaceutically effective amount of the Therapeutic administered parenterally per dose will be in the range of about 1ug/kg/day to 10 mg/kg/day of patient body weight, although, as noted above, this will be subject to therapeutic discretion. More preferably, this dose is at least 0.01 mg/kg/day, and most preferably for humans between about 0.01 and 1 mg/kg/day for the hormone. If given continuously, the Therapeutic is typically administered at a dose rate of about 1 ug/kg/hour to about 50 ug/kg/hour, either by 1-4 injections per day or by continuous subcutaneous infusions, for example, using a mini-pump. An intravenous bag solution may also be employed. The length of treatment needed to observe changes and the interval following treatment for responses to occur appears to vary depending on the desired effect.

[0891] Therapeutics can be administered orally, rectally, parenterally, intracisternally, intravaginally, intraperitoneally, topically (as by powders, ointments, gels, drops or transdermal patch), buccally, or as an oral or nasal spray. "Pharmaceutically acceptable carrier" refers to a non-toxic solid, semisolid or liquid filler, diluent, encapsulating material or formulation auxiliary of any. The term "parenteral" as used herein refers to modes of



administration which include intravenous, intramuscular, intraperitoneal, intrasternal, subcutaneous and intraarticular injection and infusion.

[0892] Therapeutics of the invention are also suitably administered by sustained-release systems. Suitable examples of sustained-release Therapeutics are administered orally, rectally, parenterally, intracisternally, intravaginally, intraperitoneally, topically (as by powders, ointments, gels, drops or transdermal patch), buccally, or as an oral or nasal spray. "Pharmaceutically acceptable carrier" refers to a non-toxic solid, semisolid or liquid filler, diluent, encapsulating material or formulation auxiliary of any type. The term "parenteral" as used herein refers to modes of administration which include intravenous, intramuscular, intraperitoneal, intrasternal, subcutaneous and intraarticular injection and infusion.

[0893] Therapeutics of the invention are also suitably administered by sustained-release systems. Suitable examples of sustained-release Therapeutics include suitable polymeric materials (such as, for example, semi-permeable polymer matrices in the form of shaped articles, e.g., films, or microcapsules), suitable hydrophobic materials (for example as an emulsion in an acceptable oil) or ion exchange resins, and sparingly soluble derivatives (such as, for example, a sparingly soluble salt).

[0894] Sustained-release matrices include polylactides (U.S. Pat. No. 3,773,919, EP 58,481), copolymers of L-glutamic acid and gamma-ethyl-L-glutamate (Sidman et al., *Biopolymers* 22:547-556 (1983)), poly (2- hydroxyethyl methacrylate) (Langer et al., *J. Biomed. Mater. Res.* 15:167-277 (1981), and Langer, *Chem. Tech.* 12:98-105 (1982)), ethylene vinyl acetate (Langer et al., *Id.*) or poly-D- (-)-3-hydroxybutyric acid (EP 133,988).

[0895] Sustained-release Therapeutics also include liposomally entrapped Therapeutics of the invention (*see generally*, Langer, *Science* 249:1527-1533 (1990); Treat et al., in *Liposomes in the Therapy of Infectious Disease and Cancer*, Lopez-Berestein and Fidler (eds.), Liss, New York, pp. 317 -327 and 353-365 (1989)). Liposomes containing the Therapeutic are prepared by methods known per se: DE 3,218,121; Epstein et al., *Proc. Natl. Acad. Sci. (USA)* 82:3688-3692 (1985); Hwang et al., *Proc. Natl. Acad. Sci.(USA)* 77:4030-4034 (1980); EP 52,322; EP 36,676; EP 88,046; EP 143,949; EP 142,641; Japanese Pat. Appl. 83-118008; U.S. Pat. Nos. 4,485,045 and 4,544,545; and EP 102,324. Ordinarily, the liposomes are of the small (about 200-800 Angstroms) unilamellar type in which the lipid content is greater than about 30 mol. percent cholesterol, the selected proportion being adjusted for the optimal Therapeutic.

[0896] In yet an additional embodiment, the Therapeutics of the invention are delivered by way of a pump (*see* Langer, *supra*; Sefton, CRC Crit. Ref. Biomed. Eng. 14:201 (1987); Buchwald et al., Surgery 88:507 (1980); Saudek et al., N. Engl. J. Med. 321:574 (1989)).

[0897] Other controlled release systems are discussed in the review by Langer (*Science* 249:1527-1533 (1990)).

[0898] For parenteral administration, in one embodiment, the Therapeutic is formulated generally by mixing it at the desired degree of purity, in a unit dosage injectable form (solution, suspension, or emulsion), with a pharmaceutically acceptable carrier, i.e., one that is non-toxic to recipients at the dosages and concentrations employed and is compatible with other ingredients of the formulation. For example, the formulation preferably does not include oxidizing agents and other compounds that are known to be deleterious to the Therapeutic.

[0899] Generally, the formulations are prepared by contacting the Therapeutic uniformly and intimately with liquid carriers or finely divided solid carriers or both. Then, if necessary, the product is shaped into the desired formulation. Preferably the carrier is a parenteral carrier, more preferably a solution that is isotonic with the blood of the recipient. Examples of such carrier vehicles include water, saline, Ringer's solution, and dextrose solution. Non-aqueous vehicles such as fixed oils and ethyl oleate are also useful herein, as well as liposomes.

[0900] The carrier suitably contains minor amounts of additives such as substances that enhance isotonicity and chemical stability. Such materials are non-toxic to recipients at the dosages and concentrations employed, and include buffers such as phosphate, citrate, succinate, acetic acid, and other organic acids or their salts; antioxidants such as ascorbic acid; low molecular weight (less than about ten residues) polypeptides, e.g., polyarginine or tripeptides; proteins, such as serum albumin, gelatin, or immunoglobulins; hydrophilic polymers such as polyvinylpyrrolidone; amino acids, such as glycine, glutamic acid, aspartic acid, or arginine; monosaccharides, disaccharides, and other carbohydrates including cellulose or its derivatives, glucose, manose, or dextrans; chelating agents such as EDTA; sugar alcohols such as mannitol or sorbitol; counterions such as sodium; and/or nonionic surfactants such as polysorbates, poloxamers, or PEG.

[0901] The Therapeutic is typically formulated in such vehicles at a concentration of about 0.1 mg/ml to 100 mg/ml, preferably 1-10 mg/ml, at a pH of about 3 to 8. It will be

understood that the use of certain of the foregoing excipients, carriers, or stabilizers will result in the formation of polypeptide salts.

[0902] Any pharmaceutical used for therapeutic administration can be sterile. Sterility is readily accomplished by filtration through sterile filtration membranes (e.g., 0.2 micron membranes). Therapeutics generally are placed into a container having a sterile access port, for example, an intravenous solution bag or vial having a stopper pierceable by a hypodermic injection needle.

[0903] Therapeutics ordinarily will be stored in unit or multi-dose containers, for example, sealed ampoules or vials, as an aqueous solution or as a lyophilized formulation for reconstitution. As an example of a lyophilized formulation, 10-ml vials are filled with 5 ml of sterile-filtered 1% (w/v) aqueous Therapeutic solution, and the resulting mixture is lyophilized. The infusion solution is prepared by reconstituting the lyophilized Therapeutic using bacteriostatic Water-for-Injection.

[0904] The invention also provides a pharmaceutical pack or kit comprising one or more containers filled with one or more of the ingredients of the Therapeutics of the invention. Associated with such container(s) can be a notice in the form prescribed by a governmental agency regulating the manufacture, use or sale of pharmaceuticals or biological products, which notice reflects approval by the agency of manufacture, use or sale for human administration. In addition, the Therapeutics may be employed in conjunction with other therapeutic compounds.

[0905] The Therapeutics of the invention may be administered alone or in combination with adjuvants. Adjuvants that may be administered with the Therapeutics of the invention include, but are not limited to, alum, alum plus deoxycholate (ImmunoAg), MTP-PE (Biocine Corp.), QS21 (Genentech, Inc.), BCG (e.g., THERACYS®), MPL and nonviable preparations of *Corynebacterium parvum*. In a specific embodiment, Therapeutics of the invention are administered in combination with alum. In another specific embodiment, Therapeutics of the invention are administered in combination with QS-21. Further adjuvants that may be administered with the Therapeutics of the invention include, but are not limited to, Monophosphoryl lipid immunomodulator, AdjuVax 100a, QS-21, QS-18, CRL1005, Aluminum salts, MF-59, and Virosomal adjuvant technology. Vaccines that may be administered with the Therapeutics of the invention include, but are not limited to, vaccines directed toward protection against MMR (measles, mumps, rubella), polio,

varicella, tetanus/diphtheria, hepatitis A, hepatitis B, haemophilus influenzae B, whooping cough, pneumonia, influenza, Lyme's Disease, rotavirus, cholera, yellow fever, Japanese encephalitis, poliomyelitis, rabies, typhoid fever, and pertussis. Combinations may be administered either concomitantly, e.g., as an admixture, separately but simultaneously or concurrently; or sequentially. This includes presentations in which the combined agents are administered together as a therapeutic mixture, and also procedures in which the combined agents are administered separately but simultaneously, e.g., as through separate intravenous lines into the same individual. Administration "in combination" further includes the separate administration of one of the compounds or agents given first, followed by the second.

[0906] The Therapeutics of the invention may be administered alone or in combination with other therapeutic agents. Therapeutic agents that may be administered in combination with the Therapeutics of the invention, include but not limited to, chemotherapeutic agents, antibiotics, steroidal and non-steroidal anti-inflammatories, conventional immunotherapeutic agents, and/or therapeutic treatments described below. Combinations may be administered either concomitantly, e.g., as an admixture, separately but simultaneously or concurrently; or sequentially. This includes presentations in which the combined agents are administered together as a therapeutic mixture, and also procedures in which the combined agents are administered separately but simultaneously, e.g., as through separate intravenous lines into the same individual. Administration "in combination" further includes the separate administration of one of the compounds or agents given first, followed by the second.

[0907] In certain embodiments, the Therapeutics of the invention are administered in combination with an anticoagulant. Anticoagulants that may be administered with the compositions of the invention include, but are not limited to, heparin, low molecular weight heparin, warfarin sodium (e.g., COUMADIN®), dicumarol, 4-hydroxycoumarin, anisindione (e.g., MIRADON™), acenocoumarol (e.g., nicoumalone, SINTHROME™), indan-1,3-dione, phenprocoumon (e.g., MARCUMAR™), ethyl biscoumacetate (e.g., TROMEXAN™), and aspirin. In a specific embodiment, compositions of the invention are administered in combination with heparin and/or warfarin. In another specific embodiment, compositions of the invention are administered in combination with warfarin. In another specific embodiment, compositions of the invention are administered in combination with warfarin and aspirin. In another specific embodiment, compositions of the invention are administered in combination

with heparin. In another specific embodiment, compositions of the invention are administered in combination with heparin and aspirin.

[0908] In another embodiment, the Therapeutics of the invention are administered in combination with thrombolytic drugs. Thrombolytic drugs that may be administered with the compositions of the invention include, but are not limited to, plasminogen, lys-plasminogen, alpha2-antiplasmin, streptokinase (e.g., KABIKINASE™), antirespace (e.g., EMINASE™), tissue plasminogen activator (t-PA, altevase, ACTIVASE™), urokinase (e.g., ABBOKINASE™), sauruplase, (Prourokinase, single chain urokinase), and aminocaproic acid (e.g., AMICAR™). In a specific embodiment, compositions of the invention are administered in combination with tissue plasminogen activator and aspirin.

[0909] In another embodiment, the Therapeutics of the invention are administered in combination with antiplatelet drugs. Antiplatelet drugs that may be administered with the compositions of the invention include, but are not limited to, aspirin, dipyridamole (e.g., PERSANTINE™), and ticlopidine (e.g., TICLID™).

[0910] In specific embodiments, the use of anti-coagulants, thrombolytic and/or antiplatelet drugs in combination with Therapeutics of the invention is contemplated for the prevention, diagnosis, and/or treatment of thrombosis, arterial thrombosis, venous thrombosis, thromboembolism, pulmonary embolism, atherosclerosis, myocardial infarction, transient ischemic attack, unstable angina. In specific embodiments, the use of anticoagulants, thrombolytic drugs and/or antiplatelet drugs in combination with Therapeutics of the invention is contemplated for the prevention of occlusion of saphenous grafts, for reducing the risk of periprocedural thrombosis as might accompany angioplasty procedures, for reducing the risk of stroke in patients with atrial fibrillation including nonrheumatic atrial fibrillation, for reducing the risk of embolism associated with mechanical

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inhibitors (PIs). NRTIs that may be administered in combination with the Therapeutics of the invention, include, but are not limited to, RETROVIR™ (zidovudine/AZT), VIDEX™ (didanosine/ddI), HIVID™ (zalcitabine/ddC), ZERIT™ (stavudine/d4T), EPIVIR™ (lamivudine/3TC), and COMBIVIR™ (zidovudine/lamivudine). NNRTIs that may be administered in combination with the Therapeutics of the invention, include, but are not limited to, VIRAMUNE™ (nevirapine), RESCRIPTOR™ (delavirdine), and SUSTIVA™ (efavirenz). Protease inhibitors that may be administered in combination with the Therapeutics of the invention, include, but are not limited to, CRIXIVAN™ (indinavir), NORVIR™ (ritonavir), INVIRASE™ (saquinavir), and VIRACEPT™ (nelfinavir). In a specific embodiment, antiretroviral agents, nucleoside reverse transcriptase inhibitors, non-nucleoside reverse transcriptase inhibitors, and/or protease inhibitors may be used in any combination with Therapeutics of the invention to treat AIDS and/or to prevent or treat HIV infection.

[0912] Additional NRTIs include LODENOSINE™ (F-ddA; an acid-stable adenosine NRTI; Triangle/Abbott); COVIRACIL™ (emtricitabine/FTC; structurally related to lamivudine (3TC) but with 3- to 10-fold greater activity *in vitro*; Triangle/Abbott); dOTC (BCH-10652, also structurally related to lamivudine but retains activity against a substantial proportion of lamivudine-resistant isolates; Biochem Pharma); Adefovir (refused approval for anti-HIV therapy by FDA; Gilead Sciences); PREVEON® (Adefovir Dipivoxil, the active prodrug of adefovir; its active form is PMEA-pp); TENOFOVIR™ (bis-POC PMPA, a PMPA prodrug; Gilead); DAPD/DXG (active metabolite of DAPD; Triangle/Abbott); D-D4FC (related to 3TC, with activity against AZT/3TC-resistant virus); GW420867X (Glaxo Wellcome); ZIAGEN™ (abacavir/159U89; Glaxo Wellcome Inc.); CS-87 (3'-azido-2',3'-dideoxyuridine; WO 99/66936); and S-acyl-2-thioethyl (SATE)-bearing prodrug forms of  $\beta$ -L-FD4C and  $\beta$ -L-FddC (WO 98/17281).

[0913] Additional NNRTIs include COACTINON™ (Emivirine/MKC-442, potent NNRTI of the HEPT class; Triangle/Abbott); CAPRAVIRINE™ (AG-1549/S-1153, a next generation NNRTI with activity against viruses containing the K103N mutation; Agouron); PNU-142721 (has 20- to 50-fold greater activity than its predecessor delavirdine and is active against K103N mutants; Pharmacia & Upjohn); DPC-961 and DPC-963 (second-generation derivatives of efavirenz, designed to be active against viruses with the K103N

mutation; DuPont); GW-420867X (has 25-fold greater activity than HBY097 and is active against K103N mutants; Glaxo Wellcome); CALANOLIDE A (naturally occurring agent from the latex tree; active against viruses containing either or both the Y181C and K103N mutations); and Propolis (WO 99/49830).

[0914] Additional protease inhibitors include LOPINAVIR™ (ABT378/r; Abbott Laboratories); BMS-232632 (an azapeptide; Bristol-Myers Squibb); TIPRANAVIR™ (PNU-140690, a non-peptic dihydropyrone; Pharmacia & Upjohn); PD-178390 (a nonpeptidic dihydropyrone; Parke-Davis); BMS 232632 (an azapeptide; Bristol-Myers Squibb); L-756,423 (an indinavir analog; Merck); DMP-450 (a cyclic urea compound; Avid & DuPont); AG-1776 (a peptidomimetic with *in vitro* activity against protease inhibitor-resistant viruses; Agouron); VX-175/GW-433908 (phosphate prodrug of amprenavir; Vertex & Glaxo Wellcome); CGP61755 (Ciba); and AGENERASE™ (amprenavir; Glaxo Wellcome Inc.).

[0915] Additional antiretroviral agents include fusion inhibitors/gp41 binders. Fusion inhibitors/gp41 binders include T-20 (a peptide from residues 643-678 of the HIV gp41 transmembrane protein ectodomain which binds to gp41 in its resting state and prevents transformation to the fusogenic state; Trimeris) and T-1249 (a second-generation fusion inhibitor; Trimeris).

[0916] Additional antiretroviral agents include fusion inhibitors/chemokine receptor antagonists. Fusion inhibitors/chemokine receptor antagonists include CXCR4 antagonists such as AMD 3100 (a bicyclam), SDF-1 and its analogs, and ALX40-4C (a cationic peptide), T22 (an 18 amino acid peptide; Trimeris) and the T22 analogs T134 and T140; CCR5 antagonists such as RANTES (9-68), AOP-RANTES, NNY-RANTES, and TAK-779; and CCR5/CXCR4 antagonists such as NSC 651016 (a distamycin analog). Also included are CCR2B, CCR3, and CCR6 antagonists. Chemokine receptor agonists such as RANTES, SDF-1, MIP-1 $\alpha$ , MIP-1 $\beta$ , etc., may also inhibit fusion.

[0917] Additional antiretroviral agents include integrase inhibitors. Integrase inhibitors include dicaffeoylquinic (DFQA) acids; L-chicoric acid (a dicaffeoyltartaric (DCTA) acid); quinalizarin (QLC) and related anthraquinones; ZINTEVIR™ (AR 177, an oligonucleotide that probably acts at cell surface rather than being a true integrase inhibitor; Arondex); and naphthols such as those disclosed in WO 98/50347.

[0918] Additional antiretroviral agents include hydroxyurea-like compounds such as BCX-34 (a purine nucleoside phosphorylase inhibitor; Biocryst); ribonucleotide reductase inhibitors such as DIDOX™ (Molecules for Health); inosine monophosphate dehydrogenase (IMPDH) inhibitors such as VX-497 (Vertex); and mycopholic acids such as CellCept (mycophenolate mofetil; Roche).

[0919] Additional antiretroviral agents include inhibitors of viral integrase, inhibitors of viral genome nuclear translocation such as arylene bis(methylketone) compounds; inhibitors of HIV entry such as AOP-RANTES, NNY-RANTES, RANTES-IgG fusion protein, soluble complexes of RANTES and glycosaminoglycans (GAG), and AMD-3100; nucleocapsid zinc finger inhibitors such as dithiane compounds; targets of HIV Tat and Rev; and pharmacoenhancers such as ABT-378.

[0920] Other antiretroviral therapies and adjunct therapies include cytokines and lymphokines such as MIP-1 $\alpha$ , MIP-1 $\beta$ , SDF-1 $\alpha$ , IL-2, PROLEUKIN™ (aldesleukin/L2-7001; Chiron), IL-4, IL-10, IL-12, and IL-13; interferons such as IFN- $\alpha$ 2a; antagonists of TNFs, NF $\kappa$ B, GM-CSF, M-CSF, and IL-10; agents that modulate immune activation such as cyclosporin and prednisone; vaccines such as Remune™ (HIV Immunogen), APL 400-003 (Apollon), recombinant gp120 and fragments, bivalent (B/E) recombinant envelope glycoprotein, rgp120CM235, MN rgp120, SF-2 rgp120, gp120/soluble CD4 complex, Delta JR-FL protein, branched synthetic peptide derived from discontinuous gp120 C3/C4 domain, fusion-competent immunogens, and Gag, Pol, Nef, and Tat vaccines; gene-based therapies such as genetic suppressor elements (GSEs; WO 98/54366), and intrakines (genetically modified CC chemokines targetted to the ER to block surface expression of newly synthesized CCR5 (Yang *et al.*, *PNAS* 94:11567-72 (1997); Chen *et al.*, *Nat. Med.* 3:1110-16 (1997)); antibodies such as the anti-CXCR4 antibody 12G5, the anti-CCR5 antibodies 2D7, 5C7, PA8, PA9, PA10, PA11, PA12, and PA14, the anti-CD4 antibodies Q4120 and RPA-T4, the anti-CCR3 antibody 7B11, the anti-gp120 antibodies 17b, 48d, 447-52D, 257-D, 268-D and 50.1, anti-Tat antibodies, anti-TNF- $\alpha$  antibodies, and monoclonal antibody 33A; aryl hydrocarbon (AH) receptor agonists and antagonists such as TCDD, 3,3',4,4',5-pentachlorobiphenyl, 3,3',4,4'-tetrachlorobiphenyl, and  $\alpha$ -naphthoflavone (WO 98/30213); and antioxidants such as  $\gamma$ -L-glutamyl-L-cysteine ethyl ester ( $\gamma$ -GCE; WO 99/56764).



[0921] In a further embodiment, the Therapeutics of the invention are administered in combination with an antiviral agent. Antiviral agents that may be administered with the Therapeutics of the invention include, but are not limited to, acyclovir, ribavirin, amantadine, and remantidine.

[0922] In other embodiments, Therapeutics of the invention may be administered in combination with anti-opportunistic infection agents. Anti-opportunistic agents that may be administered in combination with the Therapeutics of the invention, include, but are not limited to, TRIMETHOPRIM-SULFAMETHOXAZOLE™, DAPSONE™, PENTAMIDINE™, ATOVAQUONE™, ISONIAZID™, RIFAMPIN™, PYRAZINAMIDE™, ETHAMBUTOL™, RIFABUTIN™, CLARITHROMYCIN™, AZITHROMYCIN™, GANCICLOVIR™, FOSCARNET™, CIDOFOVIR™, FLUCONAZOLE™, ITRACONAZOLE™, KETOCONAZOLE™, ACYCLOVIR™, FAMCICOLVIR™, PYRIMETHAMINE™, LEUCOVORIN™, NEUPOGEN™ (filgrastim/G-CSF), and LEUKINE™ (sargramostim/GM-CSF). In a specific embodiment, Therapeutics of the invention are used in any combination with TRIMETHOPRIM-SULFAMETHOXAZOLE™, DAPSONE™, PENTAMIDINE™, and/or ATOVAQUONE™ to prophylactically treat or prevent an opportunistic *Pneumocystis carinii* pneumonia infection. In another specific embodiment, Therapeutics of the invention are used in any combination with ISONIAZID™, RIFAMPIN™, PYRAZINAMIDE™, and/or ETHAMBUTOL™ to prophylactically treat or prevent an opportunistic *Mycobacterium avium* complex infection. In another specific embodiment, Therapeutics of the invention are used in any combination with RIFABUTIN™, CLARITHROMYCIN™, and/or AZITHROMYCIN™ to prophylactically treat or prevent an opportunistic *Mycobacterium tuberculosis* infection. In another specific embodiment, Therapeutics of the invention are used in any combination with GANCICLOVIR™, FOSCARNET™, and/or CIDOFOVIR™ to prophylactically treat or prevent an opportunistic cytomegalovirus infection. In another specific embodiment, Therapeutics of the invention are used in any combination with FLUCONAZOLE™, ITRACONAZOLE™, and/or KETOCONAZOLE™ to prophylactically treat or prevent an opportunistic fungal infection. In another specific embodiment, Therapeutics of the invention are used in any combination with ACYCLOVIR™ and/or FAMCICOLVIR™ to prophylactically treat or prevent an opportunistic herpes simplex virus

type I and/or type II infection. In another specific embodiment, Therapeutics of the invention are used in any combination with PYRIMETHAMINE™ and/or LEUCOVORIN™ to prophylactically treat or prevent an opportunistic *Toxoplasma gondii* infection. In another specific embodiment, Therapeutics of the invention are used in any combination with LEUCOVORIN™ and/or NEUPOGEN™ to prophylactically treat or prevent an opportunistic bacterial infection.

[0923] In a further embodiment, the Therapeutics of the invention are administered in combination with an antibiotic agent. Antibiotic agents that may be administered with the Therapeutics of the invention include, but are not limited to, amoxicillin, beta-lactamases, aminoglycosides, beta-lactam (glycopeptide), beta-lactamases, Clindamycin, chloramphenicol, cephalosporins, ciprofloxacin, erythromycin, fluoroquinolones, macrolides, metronidazole, penicillins, quinolones, rapamycin, rifampin, streptomycin, sulfonamide, tetracyclines, trimethoprim, trimethoprim-sulfamethoxazole, and vancomycin.

[0924] In other embodiments, the Therapeutics of the invention are administered in combination with immunestimulants. Immunostimulants that may be administered in combination with the Therapeutics of the invention include, but are not limited to, levamisole (e.g., ERGAMISOL™), isoprinosine (e.g. INOSIPLEX™), interferons (e.g. interferon alpha), and interleukins (e.g., IL-2).

[0925] In other embodiments, Therapeutics of the invention are administered in combination with immunosuppressive agents. Immunosuppressive agents that may be administered in combination with the Therapeutics of the invention include, but are not limited to, steroids, cyclosporine, cyclosporine analogs, cyclophosphamide methylprednisone, prednisone, azathioprine, FK-506, 15-deoxyspergualin, and other immunosuppressive agents that act by suppressing the function of responding T cells. Other immunosuppressive agents that may be administered in combination with the Therapeutics of the invention include, but are not limited to, prednisolone, methotrexate, thalidomide, methoxsalen, rapamycin, leflunomide, mizoribine (BREDININ™), brequinar, deoxyspergualin, and azaspirane (SKF 105685), ORTHOCLONE OKT® 3 (muromonab-CD3), SANDIMMUNE™, NEORAL™, SANGDYA™ (cyclosporine), PROGRAF® (FK506, tacrolimus), CELLCEPT® (mycophenolate mofetil, of which the active metabolite is mycophenolic acid), IMURAN™ (azathioprine), glucocorticosteroids, adrenocortical steroids

such as DELTASONE™ (prednisone) and HYDELTRASOL™ (prednisolone), FOLEX™ and MEXATE™ (methotrexate), OXSORALEN-ULTRA™ (methoxsalen) and RAPAMUNE™ (sirolimus). In a specific embodiment, immunosuppressants may be used to prevent rejection of organ or bone marrow transplantation.

[0926] In an additional embodiment, Therapeutics of the invention are administered alone or in combination with one or more intravenous immune globulin preparations. Intravenous immune globulin preparations that may be administered with the Therapeutics of the invention include, but not limited to, GAMMAR™, IVEEGAM™, SANDOGLOBULIN™, GAMMAGARD S/D™, ATGAM™ (antithymocyte globulin), and GAMIMUNE™. In a specific embodiment, Therapeutics of the invention are administered in combination with intravenous immune globulin preparations in transplantation therapy (e.g., bone marrow transplant).

[0927] In certain embodiments, the Therapeutics of the invention are administered alone or in combination with an anti-inflammatory agent. Anti-inflammatory agents that may be administered with the Therapeutics of the invention include, but are not limited to, corticosteroids (e.g. betamethasone, budesonide, cortisone, dexamethasone, hydrocortisone, methylprednisolone, prednisolone, prednisone, and triamcinolone), nonsteroidal anti-inflammatory drugs (e.g., diclofenac, diflunisal, etodolac, fenoprofen, floctafenine, flurbiprofen, ibuprofen, indomethacin, ketoprofen, meclofenamate, mefenamic acid, meloxicam, nabumetone, naproxen, oxaprozin, phenylbutazone, piroxicam, sulindac, tenoxicam, tiaprofenic acid, and tolmetin.), as well as antihistamines, aminoarylcarboxylic acid derivatives, arylacetic acid derivatives, arylbutyric acid derivatives, arylcarboxylic acids, arylpropionic acid derivatives, pyrazoles, pyrazolones, salicylic acid derivatives, thiazinecarboxamides, e-acetamidocaproic acid, S-adenosylmethionine, 3-amino-4-hydroxybutyric acid, amixetrine, bendazac, benzydamine, bucolome, difenpiramide, ditazol, emorfazone, guaiazulene, nabumetone, nimesulide, orgotein, oxaceprol, paranyline, perisoxal, pifoxime, proquazone, proxazole, and tenidap.

[0928] In an additional embodiment, the compositions of the invention are administered alone or in combination with an anti-angiogenic agent. Anti-angiogenic agents that may be administered with the compositions of the invention include, but are not limited to, Angiostatin (Entremed, Rockville, MD), Troponin-1 (Boston Life Sciences, Boston, MA),

anti-Invasive Factor, retinoic acid and derivatives thereof, paclitaxel (Taxol), Suramin, Tissue Inhibitor of Metalloproteinase-1, Tissue Inhibitor of Metalloproteinase-2, VEGF, Plasminogen Activator Inhibitor-1, Plasminogen Activator Inhibitor-2, and various forms of the lighter "d group" transition metals.

[0929] Lighter "d group" transition metals include, for example, vanadium, molybdenum, tungsten, titanium, niobium, and tantalum species. Such transition metal species may form transition metal complexes. Suitable complexes of the above-mentioned transition metal species include oxo transition metal complexes.

[0930] Representative examples of vanadium complexes include oxo vanadium complexes such as vanadate and vanadyl complexes. Suitable vanadate complexes include metavanadate and orthovanadate complexes such as, for example, ammonium metavanadate, sodium metavanadate, and sodium orthovanadate. Suitable vanadyl complexes include, for example, vanadyl acetylacetonate and vanadyl sulfate including vanadyl sulfate hydrates such as vanadyl sulfate mono- and trihydrates.

[0931] Representative examples of tungsten and molybdenum complexes also include oxo complexes. Suitable oxo tungsten complexes include tungstate and tungsten oxide complexes. Suitable tungstate complexes include ammonium tungstate, calcium tungstate, sodium tungstate dihydrate, and tungstic acid. Suitable tungsten oxides include tungsten (IV) oxide and tungsten (VI) oxide. Suitable oxo molybdenum complexes include molybdate, molybdenum oxide, and molybdenyl complexes. Suitable molybdate complexes include ammonium molybdate and its hydrates, sodium molybdate and its hydrates, and potassium molybdate and its hydrates. Suitable molybdenum oxides include molybdenum (VI) oxide, molybdenum (VI) oxide, and molybdic acid. Suitable molybdenyl complexes include, for example, molybdenyl acetylacetonate. Other suitable tungsten and molybdenum complexes include hydroxo derivatives derived from, for example, glycerol, tartaric acid, and sugars.

[0932] A wide variety of other anti-angiogenic factors may also be utilized within the context of the present invention. Representative examples include, but are not limited to, platelet factor 4; protamine sulphate; sulphated chitin derivatives (prepared from queen crab shells), (Murata et al., Cancer Res. 51:22-26, (1991)); Sulphated Polysaccharide Peptidoglycan Complex (SP- PG) (the function of this compound may be enhanced by the presence of steroids such as estrogen, and tamoxifen citrate); Staurosporine; modulators of matrix metabolism, including for example, proline analogs, cishydroxyproline, d,L-3,4-

dehydroproline, Thiaproline, alpha,alpha-dipyridyl, aminopropionitrile fumarate; 4-propyl-5-(4-pyridinyl)-2(3H)-oxazolone; Methotrexate; Mitoxantrone; Heparin; Interferons; 2 Macroglobulin-serum; ChIMP-3 (Pavloff et al., *J. Bio. Chem.* 267:17321-17326, (1992)); Chymostatin (Tomkinson et al., *Biochem J.* 286:475-480, (1992)); Cyclodextrin Tetradecasulfate; Eponemycin; Camptothecin; Fumagillin (Ingber et al., *Nature* 348:555-557, (1990)); Gold Sodium Thiomalate ("GST"; Matsubara and Ziff, *J. Clin. Invest.* 79:1440-1446, (1987)); anticollagenase-serum; alpha2-antiplasmin (Holmes et al., *J. Biol. Chem.* 262(4):1659-1664, (1987)); Bisantrene (National Cancer Institute); Lobenzarit disodium (N-(2)-carboxyphenyl-4-chloroanthronilic acid disodium or "CCA"; (Takeuchi et al., *Agents Actions* 36:312-316, (1992)); and metalloproteinase inhibitors such as BB94.

[0933] Additional anti-angiogenic factors that may also be utilized within the context of the present invention include Thalidomide, (Celgene, Warren, NJ); Angiostatic steroid; AGM-1470 (H. Brem and J. Folkman *J. Pediatr. Surg.* 28:445-51 (1993)); an integrin alpha v beta 3 antagonist (C. Storgard et al., *J. Clin. Invest.* 103:47-54 (1999)); carboxynaminolimidazole; Carboxyamidotriazole (CAI) (National Cancer Institute, Bethesda, MD); Conbretastatin A-4 (CA4P) (OXiGENE, Boston, MA); Squalamine (Magainin Pharmaceuticals, Plymouth Meeting, PA); TNP-470, (Tap Pharmaceuticals, Deerfield, IL); ZD-0101 AstraZeneca (London, UK); APRA (CT2584); Benefin, Byrostatin-1 (SC339555); CGP-41251 (PKC 412); CM101; Dexrazoxane (ICRF187); DMXAA; Endostatin; Flavopridiol; Genestein; GTE; ImmTher; Iressa (ZD1839); Octreotide (Somatostatin); Panretin; Penacillamine; Photopoint; PI-88; Prinomastat (AG-3340) Purlytin; Suradista (FCE26644); Tamoxifen (Nolvadex); Tazarotene; Tetrathiomolybdate; Xeloda (Capecitabine); and 5-Fluorouracil.

[0934] Anti-angiogenic agents that may be administered in combination with the compounds of the invention may work through a variety of mechanisms including, but not limited to, inhibiting proteolysis of the extracellular matrix, blocking the function of endothelial cell-extracellular matrix adhesion molecules, by antagonizing the function of angiogenesis inducers such as growth factors, and inhibiting integrin receptors expressed on proliferating endothelial cells. Examples of anti-angiogenic inhibitors that interfere with extracellular matrix proteolysis and which may be administered in combination with the compositions of the invention include, but are not limited to, AG-3340 (Agouron, La Jolla, CA), BAY-12-9566 (Bayer, West Haven, CT), BMS-275291 (Bristol Myers Squibb, 1988

Princeton, NJ), CGS-27032A (Novartis, East Hanover, NJ), Marimastat (British Biotech, Oxford, UK), and Metastat (Aeterna, St-Foy, Quebec). Examples of anti-angiogenic inhibitors that act by blocking the function of endothelial cell-extracellular matrix adhesion molecules and which may be administered in combination with the compositions of the invention include, but are not limited to, EMD-121974 (Merck KGaA Darmstadt, Germany) and Vitaxin (Ixsys, La Jolla, CA/Medimmune, Gaithersburg, MD). Examples of anti-angiogenic agents that act by directly antagonizing or inhibiting angiogenesis inducers and which may be administered in combination with the compositions of the invention include, but are not limited to, Angiozyme (Ribozyme, Boulder, CO), Anti-VEGF antibody (Genentech, S. San Francisco, CA), PTK-787/ZK-225846 (Novartis, Basel, Switzerland), SU-101 (Sugen, S. San Francisco, CA), SU-5416 (Sugen/ Pharmacia Upjohn, Bridgewater, NJ), and SU-6668 (Sugen). Other anti-angiogenic agents act to indirectly inhibit angiogenesis. Examples of indirect inhibitors of angiogenesis which may be administered in combination with the compositions of the invention include, but are not limited to, IM-862 (Cytran, Kirkland, WA), Interferon-alpha, IL-12 (Roche, Nutley, NJ), and Pentosan polysulfate (Georgetown University, Washington, DC).

[0935] In particular embodiments, the use of compositions of the invention in combination with anti-angiogenic agents is contemplated for the treatment, prevention, and/or amelioration of an autoimmune disease, such as for example, an autoimmune disease described herein.

[0936] In a particular embodiment, the use of compositions of the invention in combination with anti-angiogenic agents is contemplated for the treatment, prevention, and/or amelioration of arthritis. In a more particular embodiment, the use of compositions of the invention in combination with anti-angiogenic agents is contemplated for the treatment, prevention, and/or amelioration of rheumatoid arthritis.

[0937] In another embodiment, the polynucleotides encoding a polypeptide of the present invention are administered in combination with an angiogenic protein, or polynucleotides encoding an angiogenic protein. Examples of angiogenic proteins that may be administered with the compositions of the invention include, but are not limited to, acidic and basic fibroblast growth factors, VEGF-1, VEGF-2, VEGF-3, epidermal growth factor alpha and beta, platelet-derived endothelial cell growth factor, platelet-derived growth factor, tumor necrosis factor alpha, hepatocyte growth factor, insulin-like growth factor, colony stimulating

factor, macrophage colony stimulating factor, granulocyte/macrophage colony stimulating factor, and nitric oxide synthase.

[0938] In additional embodiments, compositions of the invention are administered in combination with a chemotherapeutic agent. Chemotherapeutic agents that may be administered with the Therapeutics of the invention include, but are not limited to alkylating agents such as nitrogen mustards (for example, Mechlorethamine, cyclophosphamide, Cyclophosphamide Ifosfamide, Melphalan (L-sarcosine), and Chlorambucil), ethylenimines and methylmelamines (for example, Hexamethylmelamine and Thiotepa), alkyl sulfonates (for example, Busulfan), nitrosoureas (for example, Carmustine (BCNU), Lomustine (CCNU), Semustine (methyl-CCNU), and Streptozocin (streptozotocin)), triazines (for example, Dacarbazine (DTIC; dimethyltriazenoimidazolecarboxamide)), folic acid analogs (for example, Methotrexate (amethopterin)), pyrimidine analogs (for example, Fluorouracil (5-fluorouracil; 5-FU), Floxuridine (fluorodeoxyuridine; FudR), and Cytarabine (cytosine arabinoside)), purine analogs and related inhibitors (for example, Mercaptopurine (6-mercaptopurine; 6-MP), Thioguanine (6-thioguanine; TG), and Pentostatin (2'-deoxycoformycin)), vinca alkaloids (for example, Vinblastine (VLB, vinblastine sulfate)) and Vincristine (vincristine sulfate)), epipodophyllotoxins (for example, Etoposide and Teniposide), antibiotics (for example, Dactinomycin (actinomycin D), Daunorubicin (daunomycin; rubidomycin), Doxorubicin, Bleomycin, Plicamycin (mithramycin), and Mitomycin (mitomycin C), enzymes (for example, L-Asparaginase), biological response modifiers (for example, Interferon-alpha and interferon-alpha-2b), platinum coordination compounds (for example, Cisplatin (cis-DDP) and Carboplatin), anthracenedione (Mitoxantrone), substituted ureas (for example, Hydroxyurea), methylhydrazine derivatives (for example, Procarbazine (N-methylhydrazine; MIH), adrenocorticosteroids (for example, Prednisone), progestins (for example, Hydroxyprogesterone caproate, Medroxyprogesterone, Medroxyprogesterone acetate, and Megestrol acetate), estrogens (for example, Diethylstilbestrol (DES), Diethylstilbestrol diphosphate, Estradiol, and Ethinyl estradiol), antiestrogens (for example, Tamoxifen), androgens (Testosterone propionate, and Fluoxymesterone), antiandrogens (for example, Flutamide), gonadotropin-releasing hormone analogs (for example, Leuprolide), other hormones and hormone analogs (for example, methyltestosterone, estramustine, estramustine phosphate sodium, chlorotrianisene, and testolactone), and others (for example, dicarbazine, glutamic acid, and mitotane).

[0939] In one embodiment, the compositions of the invention are administered in combination with one or more of the following drugs: infliximab (also known as Remicade™ Centocor, Inc.), Trocade (Roche, RO-32-3555), Leflunomide (also known as Arava™ from Hoechst Marion Roussel), Kineret™ (an IL-1 Receptor antagonist also known as Anakinra from Amgen, Inc.)

[0940] In a specific embodiment, compositions of the invention are administered in combination with CHOP (cyclophosphamide, doxorubicin, vincristine, and prednisone) or combination of one or more of the components of CHOP. In one embodiment, the compositions of the invention are administered in combination with anti-CD20 antibodies, human monoclonal anti-CD20 antibodies. In another embodiment, the compositions of the invention are administered in combination with anti-CD20 antibodies and CHOP; or anti-CD20 antibodies and any combination of one or more of the components of CHOP, particularly cyclophosphamide and/or prednisone. In a specific embodiment, compositions of the invention are administered in combination with Rituximab. In a further embodiment, compositions of the invention are administered with Rituximab and CHOP, or Rituximab and any combination of one or more of the components of CHOP, particularly cyclophosphamide and/or prednisone. In a specific embodiment, compositions of the invention are administered in combination with tositumomab. In a further embodiment, compositions of the invention are administered with tositumomab and CHOP, or tositumomab and any combination of one or more of the components of CHOP, particularly cyclophosphamide and/or prednisone. The anti-CD20 antibodies may optionally be associated with radioisotopes, toxins or cytotoxic prodrugs.

[0941] In another specific embodiment, the compositions of the invention are administered in combination Zevalin™. In a further embodiment, compositions of the invention are administered with Zevalin™ and CHOP, or Zevalin™ and any combination of one or more of the components of CHOP, particularly cyclophosphamide and/or prednisone. Zevalin™ may be associated with one or more radisotopes. Particularly preferred isotopes are <sup>90</sup>Y and <sup>111</sup>In.

[0942] In an additional embodiment, the Therapeutics of the invention are administered in combination with cytokines. Cytokines that may be administered with the Therapeutics of the invention include, but are not limited to, IL2, IL3, IL4, IL5, IL6, IL7, IL10, IL12, IL13,



IL15, anti-CD40, CD40L, IFN-gamma and TNF-alpha. In another embodiment, Therapeutics of the invention may be administered with any interleukin, including, but not limited to, IL-1alpha, IL-1beta, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, IL-17, IL-18, IL-19, IL-20, and IL-21.

[0943] In one embodiment, the Therapeutics of the invention are administered in combination with members of the TNF family. TNF, TNF-related or TNF-like molecules that may be administered with the Therapeutics of the invention include, but are not limited to, soluble forms of TNF-alpha, lymphotoxin-alpha (LT-alpha, also known as TNF-beta), LT-beta (found in complex heterotrimer LT-alpha2-beta), OPGL, FasL, CD27L, CD30L, CD40L, 4-1BBL, DcR3, OX40L, TNF-gamma (International Publication No. WO 96/14328), AIM-I (International Publication No. WO 97/33899), endokine-alpha (International Publication No. WO 98/07880), OPG, and neutrokin-alpha (International Publication No. WO 98/18921, OX40, and nerve growth factor (NGF), and soluble forms of Fas, CD30, CD27, CD40 and 4-1BB, TR2 (International Publication No. WO 96/34095), DR3 (International Publication No. WO 97/33904), DR4 (International Publication No. WO 98/32856), TR5 (International Publication No. WO 98/30693), TRANK, TR9 (International Publication No. WO 98/56892), TR10 (International Publication No. WO 98/54202), 312C2 (International Publication No. WO 98/06842), and TR12, and soluble forms CD154, CD70, and CD153.

[0944] In an additional embodiment, the Therapeutics of the invention are administered in combination with angiogenic proteins. Angiogenic proteins that may be administered with the Therapeutics of the invention include, but are not limited to, Glioma Derived Growth Factor (GDGF), as disclosed in European Patent Number EP-399816; Platelet Derived Growth Factor-A (PDGF-A), as disclosed in European Patent Number EP-682110; Platelet Derived Growth Factor-B (PDGF-B), as disclosed in European Patent Number EP-282317; Placental Growth Factor (PlGF), as disclosed in International Publication Number WO 92/06194; Placental Growth Factor-2 (PlGF-2), as disclosed in Hauser et al., Growth Factors, 4:259-268 (1993); Vascular Endothelial Growth Factor (VEGF), as disclosed in International Publication Number WO 90/13649; Vascular Endothelial Growth Factor-A (VEGF-A), as disclosed in European Patent Number EP-506477; Vascular Endothelial Growth Factor-2 (VEGF-2), as disclosed in International Publication Number WO 96/39515; Vascular Endothelial Growth Factor B (VEGF-3); Vascular Endothelial Growth Factor B-186 (VEGF-1992

B186), as disclosed in International Publication Number WO 96/26736; Vascular Endothelial Growth Factor-D (VEGF-D), as disclosed in International Publication Number WO 98/02543; Vascular Endothelial Growth Factor-D (VEGF-D), as disclosed in International Publication Number WO 98/07832; and Vascular Endothelial Growth Factor-E (VEGF-E), as disclosed in German Patent Number DE19639601. The above mentioned references are herein incorporated by reference in their entireties.

[0945] In an additional embodiment, the Therapeutics of the invention are administered in combination with Fibroblast Growth Factors. Fibroblast Growth Factors that may be administered with the Therapeutics of the invention include, but are not limited to, FGF-1, FGF-2, FGF-3, FGF-4, FGF-5, FGF-6, FGF-7, FGF-8, FGF-9, FGF-10, FGF-11, FGF-12, FGF-13, FGF-14, and FGF-15.

[0946] In an additional embodiment, the Therapeutics of the invention are administered in combination with hematopoietic growth factors. Hematopoietic growth factors that may be administered with the Therapeutics of the invention include, but are not limited to, granulocyte macrophage colony stimulating factor (GM-CSF) (sargramostim, LEUKINE™, PROKINE™), granulocyte colony stimulating factor (G-CSF) (filgrastim, NEUPOGEN™), macrophage colony stimulating factor (M-CSF, CSF-1) erythropoietin (epoetin alfa, EPOGEN™, PROCRI™), stem cell factor (SCF, c-kit ligand, steel factor), megakaryocyte colony stimulating factor, PIXY321 (a GMCSF/IL-3 fusion protein), interleukins, especially any one or more of IL-1 through IL-12, interferon-gamma, or thrombopoietin.

[0947] In certain embodiments, Therapeutics of the present invention are administered in combination with adrenergic blockers, such as, for example, acebutolol, atenolol, betaxolol, bisoprolol, carteolol, labetalol, metoprolol, nadolol, oxprenolol, penbutolol, pindolol, propranolol, sotalol, and timolol.

[0948] In another embodiment, the Therapeutics of the invention are administered in combination with an antiarrhythmic drug (e.g., adenosine, amiodarone, bretylium, digitalis, digoxin, digitoxin, diltiazem, disopyramide, esmolol, flecainide, lidocaine, mexiletine, moricizine, phenytoin, procainamide, N-acetyl procainamide, propafenone, propranolol, quinidine, sotalol, tocainide, and verapamil).

[0949] In another embodiment, the Therapeutics of the invention are administered in combination with diuretic agents, such as carbonic anhydrase-inhibiting agents (e.g.,

acetazolamide, dichlorphenamide, and methazolamide), osmotic diuretics (e.g., glycerin, isosorbide, mannitol, and urea), diuretics that inhibit  $\text{Na}^+ - \text{K}^+ - 2\text{Cl}^-$  symport (e.g., furosemide, bumetanide, azosemide, piretanide, tripamide, ethacrynic acid, muzolimine, and torsemide), thiazide and thiazide-like diuretics (e.g., bendroflumethiazide, benzthiazide, chlorothiazide, hydrochlorothiazide, hydroflumethiazide, methyclothiazide, polythiazide, trichormethiazide, chlorthalidone, indapamide, metolazone, and quinethazone), potassium sparing diuretics (e.g., amiloride and triamterene), and mineralcorticoid receptor antagonists (e.g., spironolactone, canrenone, and potassium canrenoate).

[0950] In one embodiment, the Therapeutics of the invention are administered in combination with treatments for endocrine and/or hormone imbalance disorders. Treatments for endocrine and/or hormone imbalance disorders include, but are not limited to,  $^{127}\text{I}$ , radioactive isotopes of iodine such as  $^{131}\text{I}$  and  $^{123}\text{I}$ ; recombinant growth hormone, such as HUMATROPE™ (recombinant somatropin); growth hormone analogs such as PROTROPIN™ (somatrem); dopamine agonists such as PARLODEL™ (bromocriptine); somatostatin analogs such as SANDOSTATIN™ (octreotide); gonadotropin preparations such as PREGNYL™, A.P.L.™ and PROFASI™ (chorionic gonadotropin (CG)), PERGONAL™ (menotropins), and METRODIN™ (urofollitropin (uFSH)); synthetic human gonadotropin releasing hormone preparations such as FACTREL™ and LUTREPULSE™ (gonadorelin hydrochloride); synthetic gonadotropin agonists such as LUPRON™ (leuprolide acetate), SUPPRELIN™ (histrelin acetate), SYNAREL™ (nafarelin acetate), and ZOLADEX™ (goserelin acetate); synthetic preparations of thyrotropin-releasing hormone such as RELEFACT TRH™ and THYPINONE™ (protirelin); recombinant human TSH such as THYROGEN™; synthetic preparations of the sodium salts of the natural isomers of thyroid hormones such as  $\text{L-T}_4$ ™, SYNTHROID™ and LEVOTHROID™ (levothyroxine sodium),  $\text{L-T}_3$ ™, CYTOMEL™ and TRIOSTAT™ (liothyroine sodium), and THYROLAR™ (liotrix); antithyroid compounds such as 6-*n*-propylthiouracil (propylthiouracil), 1-methyl-2-mercaptoimidazole and TAPAZOLE™ (methimazole), NEO-MERCAZOLE™ (carbimazole); beta-adrenergic receptor antagonists such as propranolol and esmolol;  $\text{Ca}^{2+}$  channel blockers; dexamethasone and iodinated radiological contrast agents such as TELEPAQUE™ (iopanoic acid) and ORAGRAFIN™ (sodium ipodate).

[0951] Additional treatments for endocrine and/or hormone imbalance disorders include, but are not limited to, estrogens or conjugated estrogens such as ESTRACE™ (estradiol), ESTINYL™ (ethinyl estradiol), PREMARIN™, ESTRATAB™, ORTHO-EST™, OGEN™ and estropipate (estrone), ESTROVIS™ (quinestrol), ESTRADERM™ (estradiol), DELESTROGEN™ and VALERGEN™ (estradiol valerate), DEPO-ESTRADIOL CYPIONATE™ and ESTROJECT LA™ (estradiol cypionate); antiestrogens such as NOLVADEX™ (tamoxifen), SEROPHENE™ and CLOMID™ (clomiphene); progestins such as DURALUTIN™ (hydroxyprogesterone caproate), MPA™ and DEPO-PROVERA™ (medroxyprogesterone acetate), PROVERA™ and CYCRIN™ (MPA), MEGACE™ (megestrol acetate), NORLUTIN™ (norethindrone), and NORLUTATE™ and AYGESTIN™ (norethindrone acetate); progesterone implants such as NORPLANT SYSTEM™ (subdermal implants of norgestrel); antiprogestins such as RU 486™ (mifepristone); hormonal contraceptives such as ENOVID™ (norethynodrel plus mestranol), PROGESTASERT™ (intrauterine device that releases progesterone), LOESTRIN™, BREVICON™, MODICON™, GENORA™, NELONA™, NORINYL™; OVACON-35™ and OVACON-50™ (ethinyl estradiol/norethindrone), LEVLEN™, NORDETTE™, TRI-LEVLEN™ and TRIPHASIL-21™ (ethinyl estradiol/levonorgestrel) LO/OVRAL™ and OVRAL™ (ethinyl estradiol/norgestrel), DEMULEN™ (ethinyl estradiol/ethynodiol diacetate), NORINYL™, ORTHO-NOVUM™, NORETHIN™, GENORA™, and NELOVA™ (norethindrone/mestranol), DESOGEN™ and ORTHO-CEPT™ (ethinyl estradiol/desogestrel), ORTHO-CYCLEN™ and ORTHO-TRICYCLEN™ (ethinyl estradiol/norgestimate), MICRONOR™ and NOR-QD™ (norethindrone), and OVRETTE™ (norgestrel).

[0952] Additional treatments for endocrine and/or hormone imbalance disorders include, but are not limited to, testosterone esters such as methenolone acetate and testosterone undecanoate; parenteral and oral androgens such as TESTOJECT-50™ (testosterone), TESTEX™ (testosterone propionate), DELATESTRYL™ (testosterone enanthate), DEPO-TESTOSTERONE™ (testosterone cypionate), DANOCRINE™ (danazol), HALOTESTIN™ (fluoxymesterone), ORETON METHYL™, TESTRED™ and VIRILON™ (methyltestosterone), and OXANDRIN™ (oxandrolone); testosterone transdermal systems

such as TESTODERM™; androgen receptor antagonist and 5-alpha-reductase inhibitors such as ANDROCUR™ (cyproterone acetate), EULEXIN™ (flutamide), and PROSCAR™ (finasteride); adrenocorticotrophic hormone preparations such as CORTROSYN™ (cosyntropin); adrenocortical steroids and their synthetic analogs such as ACLOVATE™ (alclometasone dipropionate), CYCLOCORT™ (amcinonide), BECLOVENT™ and VANCERIL™ (beclomethasone dipropionate), CELESTONE™ (betamethasone), BENISONE™ and UTICORT™ (betamethasone benzoate), DIPROSONE™ (betamethasone dipropionate), CELESTONE PHOSPHATE™ (betamethasone sodium phosphate), CELESTONE SOLUSPAN™ (betamethasone sodium phosphate and acetate), BETA-VAL™ and VALISONE™ (betamethasone valerate), TEMOVATE™ (clobetasol propionate), CLODERM™ (clocortolone pivalate), CORTEF™ and HYDROCORTONE™ (cortisol (hydrocortisone)), HYDROCORTONE ACETATE™ (cortisol (hydrocortisone) acetate), LOCOID™ (cortisol (hydrocortisone) butyrate), HYDROCORTONE PHOSPHATE™ (cortisol (hydrocortisone) sodium phosphate), A-HYDROCORT™ and SOLU CORTEF™ (cortisol (hydrocortisone) sodium succinate), WESTCORT™ (cortisol (hydrocortisone) valerate), CORTISONE ACETATE™ (cortisone acetate), DESOWEN™ and TRIDESILON™ (desonide), TOPICORT™ (desoximetasone), DECADRON™ (dexamethasone), DECADRON LA™ (dexamethasone acetate), DECADRON PHOSPHATE™ and HEXADROL PHOSPHATE™ (dexamethasone sodium phosphate), FLORONE™ and MAXIFLOR™ (diflorasone diacetate), FLORINEF ACETATE™ (fludrocortisone acetate), AEROBID™ and NASALIDE™ (flunisolide), FLUONID™ and SYNALAR™ (fluocinolone acetonide), LIDEX™ (fluocinonide), FLUOR-OP™ and FML™ (fluorometholone), CORDRAN™ (flurandrenolide), HALOG™ (halcinonide), HMS LIZUIFILM™ (medrysone), MEDROL™ (methylprednisolone), DEPO-MEDROL™ and MEDROL ACETATE™ (methylprednisone acetate), A-METHAPRED™ and SOLUMEDROL™ (methylprednisolone sodium succinate), ELOCON™ (mometasone furoate), HALDRONE™ (paramethasone acetate), DELTA-CORTEF™ (prednisolone), ECONOPRED™ (prednisolone acetate), HYDELTRASOL™ (prednisolone sodium phosphate), HYDELTRA-T.B.A.™ (prednisolone tebutate), DELTASONE™ (prednisone), ARISTOCORT™ and KENACORT™ (triamcinolone), KENALOG™ (triamcinolone

acetone), ARISTOCORT™ and KENACORT DIACETATE™ (triamcinolone diacetate), and ARISTOSPAN™ (triamcinolone hexacetone); inhibitors of biosynthesis and action of adrenocortical steroids such as CYTADREN™ (aminoglutethimide), NIZORAL™ (ketoconazole), MODRASTANE™ (trilostane), and METOPIRONE™ (metyrapone); bovine, porcine or human insulin or mixtures thereof; insulin analogs; recombinant human insulin such as HUMULIN™ and NOVOLIN™; oral hypoglycemic agents such as ORAMIDE™ and ORINASE™ (tolbutamide), DIABINESE™ (chlorpropamide), TOLAMIDE™ and TOLINASE™ (tolazamide), DYMELOR™ (acetoexamide), glibenclamide, MICRONASE™, DIBETA™ and GLYNASE™ (glyburide), GLUCOTROL™ (glipizide), and DIAMICRON™ (gliclazide), GLUCOPHAGE™ (metformin), ciglitazone, pioglitazone, and alpha-glucosidase inhibitors; bovine or porcine glucagon; somatostatins such as SANDOSTATIN™ (octreotide); and diazoxides such as PROGLYCEM™ (diazoxide).

[0953] In one embodiment, the Therapeutics of the invention are administered in combination with treatments for uterine motility disorders. Treatments for uterine motility disorders include, but are not limited to, estrogen drugs such as conjugated estrogens (e.g., PREMARIN® and ESTRATAB®), estradiols (e.g., CLIMARA® and ALORA®), estropipate, and chlorotrianisene; progestin drugs (e.g., AMEN® (medroxyprogesterone), MICRONOR® (norethidrone acetate), PROMETRIUM® progesterone, and megestrol acetate); and estrogen/progesterone combination therapies such as, for example, conjugated estrogens/medroxyprogesterone (e.g., PREMPRO™ and PREMPHASE®) and norethindrone acetate/ethinyl estradiol (e.g., FEMHRT™).

[0954] In an additional embodiment, the Therapeutics of the invention are administered in combination with drugs effective in treating iron deficiency and hypochromic anemias, including but not limited to, ferrous sulfate (iron sulfate, FEOSOL™), ferrous fumarate (e.g., FEOSTAT™), ferrous gluconate (e.g., FERGON™), polysaccharide-iron complex (e.g., NIFEREX™), iron dextran injection (e.g., INFED™), cupric sulfate, pyroxidine, riboflavin, Vitamin B<sub>12</sub>, cyancobalamin injection (e.g., REDISOL™, RUBRAMIN PCT™), hydroxocobalamin, folic acid (e.g., FOLVITE™), leucovorin (folinic acid, 5-CHOH4PteGlu, citrovorum factor) or WELLCOVORIN (Calcium salt of leucovorin), transferrin or ferritin.

[0955] In certain embodiments, the Therapeutics of the invention are administered in combination with agents used to treat psychiatric disorders. Psychiatric drugs that may be administered with the Therapeutics of the invention include, but are not limited to, antipsychotic agents (e.g., chlorpromazine, chlorprothixene, clozapine, fluphenazine, haloperidol, loxapine, mesoridazine, molindone, olanzapine, perphenazine, pimozide, quetiapine, risperidone, thioridazine, thiothixene, trifluoperazine, and triflupromazine), antimanic agents (e.g., carbamazepine, divalproex sodium, lithium carbonate, and lithium citrate), antidepressants (e.g., amitriptyline, amoxapine, bupropion, citalopram, clomipramine, desipramine, doxepin, fluvoxamine, fluoxetine, imipramine, isocarboxazid, maprotiline, mirtazapine, nefazodone, nortriptyline, paroxetine, phenelzine, protriptyline, sertraline, tranlycypromine, trazodone, trimipramine, and venlafaxine), antianxiety agents (e.g., alprazolam, buspirone, chlordiazepoxide, clorazepate, diazepam, halazepam, lorazepam, oxazepam, and prazepam), and stimulants (e.g., d-amphetamine, methylphenidate, and pemoline).

[0956] In other embodiments, the Therapeutics of the invention are administered in combination with agents used to treat neurological disorders. Neurological agents that may be administered with the Therapeutics of the invention include, but are not limited to, antiepileptic agents (e.g., carbamazepine, clonazepam, ethosuximide, phenobarbital, phenytoin, primidone, valproic acid, divalproex sodium, felbamate, gabapentin, lamotrigine, levetiracetam, oxcarbazepine, tiagabine, topiramate, zonisamide, diazepam, lorazepam, and clonazepam), antiparkinsonian agents (e.g., levodopa/carbidopa, selegiline, amantidine, bromocriptine, pergolide, ropinirole, pramipexole, benztropine, biperiden, ethopropazine, procyclidine, trihexyphenidyl, tolcapone), and ALS therapeutics (e.g. riluzole).

[0957] In another embodiment, Therapeutics of the invention are administered in combination with vasodilating agents and/or calcium channel blocking agents. Vasodilating agents that may be administered with the Therapeutics of the invention include, but are not limited to, Angiotensin Converting Enzyme (ACE) inhibitors (e.g., papaverine, isoxsuprine, benazepril, captopril, cilazapril, enalapril, enalaprilat, fosinopril, lisinopril, moexipril, perindopril, quinapril, ramipril, spirapril,trandolapril, and nylidrin), and nitrates (e.g., isosorbide dinitrate, isosorbide mononitrate, and nitroglycerin). Examples of calcium channel blocking agents that may be administered in combination with the Therapeutics of the

invention include, but are not limited to amlodipine, bepridil, diltiazem, felodipine, flunarizine, isradipine, nifedipine, nimodipine, and verapamil.

[0958] In certain embodiments, the Therapeutics of the invention are administered in combination with treatments for gastrointestinal disorders. Treatments for gastrointestinal disorders that may be administered with the Therapeutic of the invention include, but are not limited to, H<sub>2</sub> histamine receptor antagonists (e.g., TAGAMET<sup>TM</sup> (cimetidine), ZANTAC<sup>TM</sup> (ranitidine), PEPCID<sup>TM</sup> (famotidine), and AXID<sup>TM</sup> (nizatidine)); inhibitors of H<sup>+</sup>, K<sup>+</sup> ATPase (e.g., PREVACID<sup>TM</sup> (lansoprazole) and PRILOSEC<sup>TM</sup> (omeprazole)); Bismuth compounds (e.g., PEPTO-BISMOL<sup>TM</sup> (bismuth subsalicylate) and DE-NOL<sup>TM</sup> (bismuth subcitrate)); various antacids; sucralfate; prostaglandin analogs (e.g. CYTOTEC<sup>TM</sup> (misoprostol)); muscarinic cholinergic antagonists; laxatives (e.g., surfactant laxatives, stimulant laxatives, saline and osmotic laxatives); antidiarrheal agents (e.g., LOMOTIL<sup>TM</sup> (diphenoxylate), MOTOFEN<sup>TM</sup> (diphenoxin), and IMODIUM<sup>TM</sup> (loperamide hydrochloride)), synthetic analogs of somatostatin such as SANDOSTATIN<sup>TM</sup> (octreotide), antiemetic agents (e.g., ZOFRAN<sup>TM</sup> (ondansetron), KYTRIL<sup>TM</sup> (granisetron hydrochloride), tropisetron, dolasetron, metoclopramide, chlorpromazine, perphenazine, prochlorperazine, promethazine, thiethylperazine, trifluorpromazine, domperidone, haloperidol, droperidol, trimethobenzamide, dexamethasone, methylprednisolone, dronabinol, and nabilone); D<sub>2</sub> antagonists (e.g., metoclopramide, trimethobenzamide and chlorpromazine); bile salts; chenodeoxycholic acid; ursodeoxycholic acid; and pancreatic enzyme preparations such as pancreatin and pancrelipase.

[0959] In additional embodiments, the Therapeutics of the invention are administered in combination with other therapeutic or prophylactic regimens, such as, for example, radiation therapy.

#### ***Example 14: Method of Treating Decreased Levels of the Polypeptide***

[0960] The present invention relates to a method for treating an individual in need of an increased level of a polypeptide of the invention in the body comprising administering to such an individual a composition comprising a therapeutically effective amount of an agonist of the invention (including polypeptides of the invention). Moreover, it will be appreciated



that conditions caused by a decrease in the standard or normal expression level of a polypeptide of the present invention in an individual can be treated by administering the agonist or antagonist of the present invention. Thus, the invention also provides a method of treatment of an individual in need of an increased level of the polypeptide comprising administering to such an individual a Therapeutic comprising an amount of the agonist or antagonist to increase the activity level of the polypeptide in such an individual.

[0961] For example, a patient with decreased levels of a polypeptide receives a daily dose 0.1-100 ug/kg of the agonist or antagonist for six consecutive days. The exact details of the dosing scheme, based on administration and formulation, are provided in Example 13.

#### ***Example 15: Method of Treating Increased Levels of the Polypeptide***

[0962] The present invention also relates to a method of treating an individual in need of a decreased level of a polypeptide of the invention in the body comprising administering to such an individual a composition comprising a therapeutically effective amount of an antagonist of the invention (including polypeptides and antibodies of the invention).

[0963] In one example, antisense technology is used to inhibit production of a polypeptide of the present invention. This technology is one example of a method of decreasing levels of a polypeptide, due to a variety of etiologies, such as cancer.

[0964] For example, a patient diagnosed with abnormally increased levels of a polypeptide is administered intravenously antisense polynucleotides at 0.5, 1.0, 1.5, 2.0 and 3.0 mg/kg day for 21 days. This treatment is repeated after a 7-day rest period if the treatment was well tolerated. The antisense polynucleotides of the present invention can be formulated using techniques and formulations described herein (e.g. see Example 13), or otherwise known in the art.

#### ***Example 16: Method of Treatment Using Gene Therapy-Ex Vivo***

[0965] One method of gene therapy transplants fibroblasts, which are capable of expressing a polypeptide, onto a patient. Generally, fibroblasts are obtained from a subject by skin biopsy. The resulting tissue is placed in tissue-culture medium and separated into

small pieces. Small chunks of the tissue are placed on a wet surface of a tissue culture flask, approximately ten pieces are placed in each flask. The flask is turned upside down, closed tight and left at room temperature over night. After 24 hours at room temperature, the flask is inverted and the chunks of tissue remain fixed to the bottom of the flask and fresh media (e.g., Ham's F12 media, with 10% FBS, penicillin and streptomycin) is added. The flasks are then incubated at 37 degree C for approximately one week.

[0966] At this time, fresh media is added and subsequently changed every several days. After an additional two weeks in culture, a monolayer of fibroblasts emerge. The monolayer is trypsinized and scaled into larger flasks.

[0967] pMV-7 (Kirschmeier, P.T. et al., DNA, 7:219-25 (1988)), flanked by the long terminal repeats of the Moloney murine sarcoma virus, is digested with EcoRI and HindIII and subsequently treated with calf intestinal phosphatase. The linear vector is fractionated on agarose gel and purified, using glass beads.

[0968] The cDNA encoding a polypeptide of the present invention can be amplified using PCR primers which correspond to the 5' and 3' end sequences respectively as set forth in Example 1 using primers and having appropriate restriction sites and initiation/stop codons, if necessary. Preferably, the 5' primer contains an EcoRI site and the 3' primer includes a HindIII site. Equal quantities of the Moloney murine sarcoma virus linear backbone and the amplified EcoRI and HindIII fragment are added together, in the presence of T4 DNA ligase. The resulting mixture is maintained under conditions appropriate for ligation of the two fragments. The ligation mixture is then used to transform bacteria HB101, which are then plated onto agar containing kanamycin for the purpose of confirming that the vector has the gene of interest properly inserted.

[0969] The amphotropic pA317 or GP+am12 packaging cells are grown in tissue culture to confluent density in Dulbecco's Modified Eagles Medium (DMEM) with 10% calf serum (CS), penicillin and streptomycin. The MSV vector containing the gene is then added to the media and the packaging cells transduced with the vector. The packaging cells now produce infectious viral particles containing the gene (the packaging cells are now referred to as producer cells).

[0970] Fresh media is added to the transduced producer cells, and subsequently, the media is harvested from a 10 cm plate of confluent producer cells. The spent media, containing the infectious viral particles, is filtered through a millipore filter to remove detached producer

cells and this media is then used to infect fibroblast cells. Media is removed from a sub-confluent plate of fibroblasts and quickly replaced with the media from the producer cells. This media is removed and replaced with fresh media. If the titer of virus is high, then virtually all fibroblasts will be infected and no selection is required. If the titer is very low, then it is necessary to use a retroviral vector that has a selectable marker, such as neo or his. Once the fibroblasts have been efficiently infected, the fibroblasts are analyzed to determine whether protein is produced.

[0971] The engineered fibroblasts are then transplanted onto the host, either alone or after having been grown to confluence on cytodex 3 microcarrier beads.

***Example 17: Gene Therapy Using Endogenous Genes Corresponding To  
Polynucleotides of the Invention***

[0972] Another method of gene therapy according to the present invention involves operably associating the endogenous polynucleotide sequence of the invention with a promoter via homologous recombination as described, for example, in U.S. Patent NO: 5,641,670, issued June 24, 1997; International Publication NO: WO 96/29411, published September 26, 1996; International Publication NO: WO 94/12650, published August 4, 1994; Koller et al., *Proc. Natl. Acad. Sci. USA*, 86:8932-8935 (1989); and Zijlstra et al., *Nature*, 342:435-438 (1989). This method involves the activation of a gene which is present in the target cells, but which is not expressed in the cells, or is expressed at a lower level than desired.

[0973] Polynucleotide constructs are made which contain a promoter and targeting sequences, which are homologous to the 5' non-coding sequence of endogenous polynucleotide sequence, flanking the promoter. The targeting sequence will be sufficiently near the 5' end of the polynucleotide sequence so the promoter will be operably linked to the endogenous sequence upon homologous recombination. The promoter and the targeting sequences can be amplified using PCR. Preferably, the amplified promoter contains distinct restriction enzyme sites on the 5' and 3' ends. Preferably, the 3' end of the first targeting sequence contains the same restriction enzyme site as the 5' end of the amplified promoter

and the 5' end of the second targeting sequence contains the same restriction site as the 3' end of the amplified promoter.

[0974] The amplified promoter and the amplified targeting sequences are digested with the appropriate restriction enzymes and subsequently treated with calf intestinal phosphatase. The digested promoter and digested targeting sequences are added together in the presence of T4 DNA ligase. The resulting mixture is maintained under conditions appropriate for ligation of the two fragments. The construct is size fractionated on an agarose gel, then purified by phenol extraction and ethanol precipitation.

[0975] In this Example, the polynucleotide constructs are administered as naked polynucleotides via electroporation. However, the polynucleotide constructs may also be administered with transfection-facilitating agents, such as liposomes, viral sequences, viral particles, precipitating agents, etc. Such methods of delivery are known in the art.

[0976] Once the cells are transfected, homologous recombination will take place which results in the promoter being operably linked to the endogenous polynucleotide sequence. This results in the expression of polynucleotide corresponding to the polynucleotide in the cell. Expression may be detected by immunological staining, or any other method known in the art.

[0977] Fibroblasts are obtained from a subject by skin biopsy. The resulting tissue is placed in DMEM + 10% fetal calf serum. Exponentially growing or early stationary phase fibroblasts are trypsinized and rinsed from the plastic surface with nutrient medium. An aliquot of the cell suspension is removed for counting, and the remaining cells are subjected to centrifugation. The supernatant is aspirated and the pellet is resuspended in 5 ml of electroporation buffer (20 mM HEPES pH 7.3, 137 mM NaCl, 5 mM KCl, 0.7 mM Na<sub>2</sub>HPO<sub>4</sub>, 6 mM dextrose). The cells are recentrifuged, the supernatant aspirated, and the cells resuspended in electroporation buffer containing 1 mg/ml acetylated bovine serum albumin. The final cell suspension contains approximately  $3 \times 10^6$  cells/ml. Electroporation should be performed immediately following resuspension.

[0978] Plasmid DNA is prepared according to standard techniques. For example, to construct a plasmid for targeting to the locus corresponding to the polynucleotide of the invention, plasmid pUC18 (MBI Fermentas, Amherst, NY) is digested with HindIII. The CMV promoter is amplified by PCR with an XbaI site on the 5' end and a BamHI site on the 3' end. Two non-coding sequences are amplified via PCR: one non-coding sequence

(fragment 1) is amplified with a HindIII site at the 5' end and an Xba site at the 3' end; the other non-coding sequence (fragment 2) is amplified with a BamHI site at the 5' end and a HindIII site at the 3' end. The CMV promoter and the fragments (1 and 2) are digested with the appropriate enzymes (CMV promoter - XbaI and BamHI; fragment 1 - XbaI; fragment 2 - BamHI) and ligated together. The resulting ligation product is digested with HindIII, and ligated with the HindIII-digested pUC18 plasmid.

[0979] Plasmid DNA is added to a sterile cuvette with a 0.4 cm electrode gap (Bio-Rad). The final DNA concentration is generally at least 120 µg/ml. 0.5 ml of the cell suspension (containing approximately  $1.5 \times 10^6$  cells) is then added to the cuvette, and the cell suspension and DNA solutions are gently mixed. Electroporation is performed with a Gene-Pulser apparatus (Bio-Rad). Capacitance and voltage are set at 960 µF and 250-300 V, respectively. As voltage increases, cell survival decreases, but the percentage of surviving cells that stably incorporate the introduced DNA into their genome increases dramatically. Given these parameters, a pulse time of approximately 14-20 mSec should be observed.

[0980] Electroporated cells are maintained at room temperature for approximately 5 min, and the contents of the cuvette are then gently removed with a sterile transfer pipette. The cells are added directly to 10 ml of prewarmed nutrient media (DMEM with 15% calf serum) in a 10 cm dish and incubated at 37 degree C. The following day, the media is aspirated and replaced with 10 ml of fresh media and incubated for a further 16-24 hours.

[0981] The engineered fibroblasts are then injected into the host, either alone or after having been grown to confluence on cytodex 3 microcarrier beads. The fibroblasts now produce the protein product. The fibroblasts can then be introduced into a patient as described above.

### ***Example 18: Method of Treatment Using Gene Therapy - In Vivo***

[0982] Another aspect of the present invention is using *in vivo* gene therapy methods to treat disorders, diseases and conditions. The gene therapy method relates to the introduction of naked nucleic acid (DNA, RNA, and antisense DNA or RNA) sequences into an animal to increase or decrease the expression of the polypeptide. The polynucleotide of the present invention may be operatively linked to (i.e., associated with) a promoter or any other genetic

elements necessary for the expression of the polypeptide by the target tissue. Such gene therapy and delivery techniques and methods are known in the art, see, for example, WO90/11092, WO98/11779; U.S. Patent NO. 5693622, 5705151, 5580859; Tabata et al., *Cardiovasc. Res.* 35(3):470-479 (1997); Chao et al., *Pharmacol. Res.* 35(6):517-522 (1997); Wolff, *Neuromuscul. Disord.* 7(5):314-318 (1997); Schwartz et al., *Gene Ther.* 3(5):405-411 (1996); Tsurumi et al., *Circulation* 94(12):3281-3290 (1996) (incorporated herein by reference).

[0983] The polynucleotide constructs may be delivered by any method that delivers injectable materials to the cells of an animal, such as, injection into the interstitial space of tissues (heart, muscle, skin, lung, liver, intestine and the like). The polynucleotide constructs can be delivered in a pharmaceutically acceptable liquid or aqueous carrier.

[0984] The term "naked" polynucleotide, DNA or RNA, refers to sequences that are free from any delivery vehicle that acts to assist, promote, or facilitate entry into the cell, including viral sequences, viral particles, liposome formulations, lipofectin or precipitating agents and the like. However, the polynucleotides of the present invention may also be delivered in liposome formulations (such as those taught in Felgner P.L. et al. (1995) *Ann. NY Acad. Sci.* 772:126-139 and Abdallah B. et al. (1995) *Biol. Cell* 85(1):1-7) which can be prepared by methods well known to those skilled in the art.

[0985] The polynucleotide vector constructs used in the gene therapy method are preferably constructs that will not integrate into the host genome nor will they contain sequences that allow for replication. Any strong promoter known to those skilled in the art can be used for driving the expression of DNA. Unlike other gene therapy techniques, one major advantage of introducing naked nucleic acid sequences into target cells is the transitory nature of the polynucleotide synthesis in the cells. Studies have shown that non-replicating DNA sequences can be introduced into cells to provide production of the desired polypeptide for periods of up to six months.

[0986] The polynucleotide construct can be delivered to the interstitial space of tissues within an animal, including muscle, skin, brain, lung, liver, spleen, bone marrow, thymus, heart, lymph, blood, bone, cartilage, pancreas, kidney, gall bladder, stomach, intestine, testis, ovary, uterus, rectum, nervous system, eye, gland, and connective tissue. Interstitial space of the tissues comprises the intercellular fluid, mucopolysaccharide matrix among the reticular fibers of organ tissues, elastic fibers in the walls of vessels or chambers, collagen fibers of

fibrous tissues, or that same matrix within connective tissue ensheathing muscle cells or in the lacunae of bone. It is similarly the space occupied by the plasma of the circulation and the lymph fluid of the lymphatic channels. Delivery to the interstitial space of muscle tissue is preferred for the reasons discussed below. They may be conveniently delivered by injection into the tissues comprising these cells. They are preferably delivered to and expressed in persistent, non-dividing cells which are differentiated, although delivery and expression may be achieved in non-differentiated or less completely differentiated cells, such as, for example, stem cells of blood or skin fibroblasts. *In vivo* muscle cells are particularly competent in their ability to take up and express polynucleotides.

[0987] For the naked polynucleotide injection, an effective dosage amount of DNA or RNA will be in the range of from about 0.05 g/kg body weight to about 50 mg/kg body weight. Preferably the dosage will be from about 0.005 mg/kg to about 20 mg/kg and more preferably from about 0.05 mg/kg to about 5 mg/kg. Of course, as the artisan of ordinary skill will appreciate, this dosage will vary according to the tissue site of injection. The appropriate and effective dosage of nucleic acid sequence can readily be determined by those of ordinary skill in the art and may depend on the condition being treated and the route of administration. The preferred route of administration is by the parenteral route of injection into the interstitial space of tissues. However, other parenteral routes may also be used, such as, inhalation of an aerosol formulation particularly for delivery to lungs or bronchial tissues, throat or mucous membranes of the nose. In addition, naked polynucleotide constructs can be delivered to arteries during angioplasty by the catheter used in the procedure.

[0988] The dose response effects of injected polynucleotide in muscle *in vivo* is determined as follows. Suitable template DNA for production of mRNA coding for polypeptide of the present invention is prepared in accordance with a standard recombinant DNA methodology. The template DNA, which may be either circular or linear, is either used as naked DNA or complexed with liposomes. The quadriceps muscles of mice are then injected with various amounts of the template DNA.

[0989] Five to six week old female and male Balb/C mice are anesthetized by intraperitoneal injection with 0.3 ml of 2.5% Avertin. A 1.5 cm incision is made on the anterior thigh, and the quadriceps muscle is directly visualized. The template DNA is injected in 0.1 ml of carrier in a 1 cc syringe through a 27 gauge needle over one minute, approximately 0.5 cm from the distal insertion site of the muscle into the knee and about 0.2

cm deep. A suture is placed over the injection site for future localization, and the skin is closed with stainless steel clips.

[0990] After an appropriate incubation time (e.g., 7 days) muscle extracts are prepared by excising the entire quadriceps. Every fifth 15  $\mu$ m cross-section of the individual quadriceps muscles is histochemically stained for protein expression. A time course for protein expression may be done in a similar fashion except that quadriceps from different mice are harvested at different times. Persistence of DNA in muscle following injection may be determined by Southern blot analysis after preparing total cellular DNA and HIRT supernatants from injected and control mice. The results of the above experimentation in mice can be used to extrapolate proper dosages and other treatment parameters in humans and other animals using naked DNA.

### ***Example 19: Transgenic Animals***

[0991] The polypeptides of the invention can also be expressed in transgenic animals. Animals of any species, including, but not limited to, mice, rats, rabbits, hamsters, guinea pigs, pigs, micro-pigs, goats, sheep, cows and non-human primates, e.g., baboons, monkeys, and chimpanzees may be used to generate transgenic animals. In a specific embodiment, techniques described herein or otherwise known in the art, are used to express polypeptides of the invention in humans, as part of a gene therapy protocol.

[0992] Any technique known in the art may be used to introduce the transgene (i.e., polynucleotides of the invention) into animals to produce the founder lines of transgenic animals. Such techniques include, but are not limited to, pronuclear microinjection (Paterson et al., Appl. Microbiol. Biotechnol. 40:691-698 (1994); Carver et al., Biotechnology (NY) 11:1263-1270 (1993); Wright et al., Biotechnology (NY) 9:830-834 (1991); and Hoppe et al., U.S. Pat. No. 4,873,191 (1989)); retrovirus mediated gene transfer into germ lines (Van der Putten et al., Proc. Natl. Acad. Sci., USA 82:6148-6152 (1985)), blastocysts or embryos; gene targeting in embryonic stem cells (Thompson et al., Cell 56:313-321 (1989)); electroporation of cells or embryos (Lo, 1983, Mol Cell. Biol. 3:1803-1814 (1983)); introduction of the polynucleotides of the invention using a gene gun (see, e.g., Ulmer et al., Science 259:1745 (1993); introducing nucleic acid constructs into embryonic pleuripotent



stem cells and transferring the stem cells back into the blastocyst; and sperm-mediated gene transfer (Lavitrano et al., Cell 57:717-723 (1989); etc. For a review of such techniques, see Gordon, "Transgenic Animals," Intl. Rev. Cytol. 115:171-229 (1989), which is incorporated by reference herein in its entirety.

[0993] Any technique known in the art may be used to produce transgenic clones containing polynucleotides of the invention, for example, nuclear transfer into enucleated oocytes of nuclei from cultured embryonic, fetal, or adult cells induced to quiescence (Campell et al., Nature 380:64-66 (1996); Wilmut et al., Nature 385:810-813 (1997)).

[0994] The present invention provides for transgenic animals that carry the transgene in all their cells, as well as animals which carry the transgene in some, but not all their cells, *i.e.*, mosaic animals or chimeric. The transgene may be integrated as a single transgene or as multiple copies such as in concatamers, *e.g.*, head-to-head tandems or head-to-tail tandems. The transgene may also be selectively introduced into and activated in a particular cell type by following, for example, the teaching of Lasko et al. (Lasko et al., Proc. Natl. Acad. Sci. USA 89:6232-6236 (1992)). The regulatory sequences required for such a cell-type specific activation will depend upon the particular cell type of interest, and will be apparent to those of skill in the art. When it is desired that the polynucleotide transgene be integrated into the chromosomal site of the endogenous gene, gene targeting is preferred. Briefly, when such a technique is to be utilized, vectors containing some nucleotide sequences homologous to the endogenous gene are designed for the purpose of integrating, via homologous recombination with chromosomal sequences, into and disrupting the function of the nucleotide sequence of the endogenous gene. The transgene may also be selectively introduced into a particular cell type, thus inactivating the endogenous gene in only that cell type, by following, for example, the teaching of Gu et al. (Gu et al., Science 265:103-106 (1994)). The regulatory sequences required for such a cell-type specific inactivation will depend upon the particular cell type of interest, and will be apparent to those of skill in the art.

[0995] Once transgenic animals have been generated, the expression of the recombinant gene may be assayed utilizing standard techniques. Initial screening may be accomplished by Southern blot analysis or PCR techniques to analyze animal tissues to verify that integration of the transgene has taken place. The level of mRNA expression of the transgene in the tissues of the transgenic animals may also be assessed using techniques which include, but are not limited to, Northern blot analysis of tissue samples obtained from the animal, *in situ*

hybridization analysis, and reverse transcriptase-PCR (rt-PCR). Samples of transgenic gene-expressing tissue may also be evaluated immunocytochemically or immunohistochemically using antibodies specific for the transgene product.

[0996] Once the founder animals are produced, they may be bred, inbred, outbred, or crossbred to produce colonies of the particular animal. Examples of such breeding strategies include, but are not limited to: outbreeding of founder animals with more than one integration site in order to establish separate lines; inbreeding of separate lines in order to produce compound transgenics that express the transgene at higher levels because of the effects of additive expression of each transgene; crossing of heterozygous transgenic animals to produce animals homozygous for a given integration site in order to both augment expression and eliminate the need for screening of animals by DNA analysis; crossing of separate homozygous lines to produce compound heterozygous or homozygous lines; and breeding to place the transgene on a distinct background that is appropriate for an experimental model of interest.

[0997] Transgenic animals of the invention have uses which include, but are not limited to, animal model systems useful in elaborating the biological function of polypeptides of the present invention, studying conditions and/or disorders associated with aberrant expression, and in screening for compounds effective in ameliorating such conditions and/or disorders.

### ***Example 20: Knock-Out Animals***

[0998] Endogenous gene expression can also be reduced by inactivating or "knocking out" the gene and/or its promoter using targeted homologous recombination. (e.g., see Smithies et al., *Nature* 317:230-234 (1985); Thomas & Capecchi, *Cell* 51:503-512 (1987); Thompson et al., *Cell* 5:313-321 (1989); each of which is incorporated by reference herein in its entirety). For example, a mutant, non-functional polynucleotide of the invention (or a completely unrelated DNA sequence) flanked by DNA homologous to the endogenous polynucleotide sequence (either the coding regions or regulatory regions of the gene) can be used, with or without a selectable marker and/or a negative selectable marker, to transfect cells that express polypeptides of the invention *in vivo*. In another embodiment, techniques known in the art are used to generate knockouts in cells that contain, but do not express the gene of interest.

Insertion of the DNA construct, via targeted homologous recombination, results in inactivation of the targeted gene. Such approaches are particularly suited in research and agricultural fields where modifications to embryonic stem cells can be used to generate animal offspring with an inactive targeted gene (e.g., see Thomas & Capecchi 1987 and Thompson 1989, *supra*). However this approach can be routinely adapted for use in humans provided the recombinant DNA constructs are directly administered or targeted to the required site *in vivo* using appropriate viral vectors that will be apparent to those of skill in the art.

[0999] In further embodiments of the invention, cells that are genetically engineered to express the polypeptides of the invention, or alternatively, that are genetically engineered not to express the polypeptides of the invention (e.g., knockouts) are administered to a patient *in vivo*. Such cells may be obtained from the patient (i.e., animal, including human) or an MHC compatible donor and can include, but are not limited to fibroblasts, bone marrow cells, blood cells (e.g., lymphocytes), adipocytes, muscle cells, endothelial cells etc. The cells are genetically engineered *in vitro* using recombinant DNA techniques to introduce the coding sequence of polypeptides of the invention into the cells, or alternatively, to disrupt the coding sequence and/or endogenous regulatory sequence associated with the polypeptides of the invention, e.g., by transduction (using viral vectors, and preferably vectors that integrate the transgene into the cell genome) or transfection procedures, including, but not limited to, the use of plasmids, cosmids, YACs, naked DNA, electroporation, liposomes, etc. The coding sequence of the polypeptides of the invention can be placed under the control of a strong constitutive or inducible promoter or promoter/enhancer to achieve expression, and preferably secretion, of the polypeptides of the invention. The engineered cells which express and preferably secrete the polypeptides of the invention can be introduced into the patient systemically, e.g., in the circulation, or intraperitoneally.

[1000] Alternatively, the cells can be incorporated into a matrix and implanted in the body, e.g., genetically engineered fibroblasts can be implanted as part of a skin graft; genetically engineered endothelial cells can be implanted as part of a lymphatic or vascular graft. (See, for example, Anderson et al. U.S. Patent No. 5,399,349; and Mulligan & Wilson, U.S. Patent No. 5,460,959 each of which is incorporated by reference herein in its entirety).

[1001] When the cells to be administered are non-autologous or non-MHC compatible cells, they can be administered using well known techniques which prevent the development

of a host immune response against the introduced cells. For example, the cells may be introduced in an encapsulated form which, while allowing for an exchange of components with the immediate extracellular environment, does not allow the introduced cells to be recognized by the host immune system.

[1002] Transgenic and "knock-out" animals of the invention have uses which include, but are not limited to, animal model systems useful in elaborating the biological function of polypeptides of the present invention, studying conditions and/or disorders associated with aberrant expression, and in screening for compounds effective in ameliorating such conditions and/or disorders.

***Example 21: Assays Detecting Stimulation or Inhibition of B cell  
Proliferation and Differentiation***

[1003] Generation of functional humoral immune responses requires both soluble and cognate signaling between B-lineage cells and their microenvironment. Signals may impart a positive stimulus that allows a B-lineage cell to continue its programmed development, or a negative stimulus that instructs the cell to arrest its current developmental pathway. To date, numerous stimulatory and inhibitory signals have been found to influence B cell responsiveness including IL-2, IL-4, IL-5, IL-6, IL-7, IL10, IL-13, IL-14 and IL-15. Interestingly, these signals are by themselves weak effectors but can, in combination with various co-stimulatory proteins, induce activation, proliferation, differentiation, homing, tolerance and death among B cell populations.

[1004] One of the best studied classes of B-cell co-stimulatory proteins is the TNF-superfamily. Within this family CD40, CD27, and CD30 along with their respective ligands CD154, CD70, and CD153 have been found to regulate a variety of immune responses. Assays which allow for the detection and/or observation of the proliferation and differentiation of these B-cell populations and their precursors are valuable tools in determining the effects various proteins may have on these B-cell populations in terms of proliferation and differentiation. Listed below are two assays designed to allow for the detection of the differentiation, proliferation, or inhibition of B-cell populations and their precursors.

[1005] *In Vitro* Assay- Agonists or antagonists of the invention can be assessed for its ability to induce activation, proliferation, differentiation or inhibition and/or death in B-cell populations and their precursors. The activity of the agonists or antagonists of the invention on purified human tonsillar B cells, measured qualitatively over the dose range from 0.1 to 10,000 ng/mL, is assessed in a standard B-lymphocyte co-stimulation assay in which purified tonsillar B cells are cultured in the presence of either formalin-fixed *Staphylococcus aureus* Cowan I (SAC) or immobilized anti-human IgM antibody as the priming agent. Second signals such as IL-2 and IL-15 synergize with SAC and IgM crosslinking to elicit B cell proliferation as measured by tritiated-thymidine incorporation. Novel synergizing agents can be readily identified using this assay. The assay involves isolating human tonsillar B cells by magnetic bead (MACS) depletion of CD3-positive cells. The resulting cell population is greater than 95% B cells as assessed by expression of CD45R(B220).

[1006] Various dilutions of each sample are placed into individual wells of a 96-well plate to which are added  $10^5$  B-cells suspended in culture medium (RPMI 1640 containing 10% FBS,  $5 \times 10^{-5}$  M 2ME, 100U/ml penicillin, 10ug/ml streptomycin, and  $10^{-5}$  dilution of SAC) in a total volume of 150ul. Proliferation or inhibition is quantitated by a 20h pulse (1uCi/well) with  $^3$ H-thymidine (6.7 Ci/mM) beginning 72h post factor addition. The positive and negative controls are IL2 and medium respectively.

[1007] *In vivo* Assay- BALB/c mice are injected (i.p.) twice per day with buffer only, or 2 mg/Kg of agonists or antagonists of the invention, or truncated forms thereof. Mice receive this treatment for 4 consecutive days, at which time they are sacrificed and various tissues and serum collected for analyses. Comparison of H&E sections from normal spleens and spleens treated with agonists or antagonists of the invention identify the results of the activity of the agonists or antagonists on spleen cells, such as the diffusion of peri-arterial lymphatic sheaths, and/or significant increases in the nucleated cellularity of the red pulp regions, which may indicate the activation of the differentiation and proliferation of B-cell populations. Immunohistochemical studies using a B cell marker, anti-CD45R(B220), are used to determine whether any physiological changes to splenic cells, such as splenic disorganization, are due to increased B-cell representation within loosely defined B-cell zones that infiltrate established T-cell regions.

[1008] Flow cytometric analyses of the spleens from mice treated with agonist or antagonist is used to indicate whether the agonists or antagonists specifically increases the proportion of ThB<sup>+</sup>, CD45R(B220)dull B cells over that which is observed in control mice.

[1009] Likewise, a predicted consequence of increased mature B-cell representation *in vivo* is a relative increase in serum Ig titers. Accordingly, serum IgM and IgA levels are compared between buffer and agonists or antagonists-treated mice.

[1010] The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

### ***Example 22: T Cell Proliferation Assay***

[1011] A CD3-induced proliferation assay is performed on PBMCs and is measured by the uptake of <sup>3</sup>H-thymidine. The assay is performed as follows. Ninety-six well plates are coated with 100 µl/well of mAb to CD3 (HIT3a, Pharmingen) or isotype-matched control mAb (B33.1) overnight at 4 degrees C (1 µg/ml in .05M bicarbonate buffer, pH 9.5), then washed three times with PBS. PBMC are isolated by F/H gradient centrifugation from human peripheral blood and added to quadruplicate wells (5 x 10<sup>4</sup>/well) of mAb coated plates in RPMI containing 10% FCS and P/S in the presence of varying concentrations of agonists or antagonists of the invention (total volume 200 µl). Relevant protein buffer and medium alone are controls. After 48 hr. culture at 37 degrees C, plates are spun for 2 min. at 1000 rpm and 100 µl of supernatant is removed and stored -20 degrees C for measurement of IL-2 (or other cytokines) if effect on proliferation is observed. Wells are supplemented with 100 µl of medium containing 0.5 uCi of <sup>3</sup>H-thymidine and cultured at 37 degrees C for 18-24 hr. Wells are harvested and incorporation of <sup>3</sup>H-thymidine used as a measure of proliferation. Anti-CD3 alone is the positive control for proliferation. IL-2 (100 U/ml) is also used as a control which enhances proliferation. Control antibody which does not induce proliferation of T cells is used as the negative control for the effects of agonists or antagonists of the invention.

[1012] The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

***Example 23: Effect of Agonists or Antagonists of the Invention on the Expression of MHC Class II, Costimulatory and Adhesion Molecules and Cell Differentiation of Monocytes and Monocyte-Derived Human Dendritic Cells***

[1013] Dendritic cells are generated by the expansion of proliferating precursors found in the peripheral blood: adherent PBMC or elutriated monocytic fractions are cultured for 7-10 days with GM-CSF (50 ng/ml) and IL-4 (20 ng/ml). These dendritic cells have the characteristic phenotype of immature cells (expression of CD1, CD80, CD86, CD40 and MHC class II antigens). Treatment with activating factors, such as TNF- $\alpha$ , causes a rapid change in surface phenotype (increased expression of MHC class I and II, costimulatory and adhesion molecules, downregulation of FCyRII, upregulation of CD83). These changes correlate with increased antigen-presenting capacity and with functional maturation of the dendritic cells.

[1014] FACS analysis of surface antigens is performed as follows. Cells are treated 1-3 days with increasing concentrations of agonist or antagonist of the invention or LPS (positive control), washed with PBS containing 1% BSA and 0.02 mM sodium azide, and then incubated with 1:20 dilution of appropriate FITC- or PE-labeled monoclonal antibodies for 30 minutes at 4 degrees C. After an additional wash, the labeled cells are analyzed by flow cytometry on a FACScan (Becton Dickinson).

[1015] Effect on the production of cytokines. Cytokines generated by dendritic cells, in particular IL-12, are important in the initiation of T-cell dependent immune responses. IL-12 strongly influences the development of Th1 helper T-cell immune response, and induces cytotoxic T and NK cell function. An ELISA is used to measure the IL-12 release as follows. Dendritic cells ( $10^6$ /ml) are treated with increasing concentrations of agonists or antagonists

of the invention for 24 hours. LPS (100 ng/ml) is added to the cell culture as positive control. Supernatants from the cell cultures are then collected and analyzed for IL-12 content using commercial ELISA kit (e.g., R & D Systems (Minneapolis, MN)). The standard protocols provided with the kits are used.

**[1016] Effect on the expression of MHC Class II, costimulatory and adhesion molecules.**

Three major families of cell surface antigens can be identified on monocytes: adhesion molecules, molecules involved in antigen presentation, and Fc receptor. Modulation of the expression of MHC class II antigens and other costimulatory molecules, such as B7 and ICAM-1, may result in changes in the antigen presenting capacity of monocytes and ability to induce T cell activation. Increased expression of Fc receptors may correlate with improved monocyte cytotoxic activity, cytokine release and phagocytosis.

**[1017]** FACS analysis is used to examine the surface antigens as follows. Monocytes are treated 1-5 days with increasing concentrations of agonists or antagonists of the invention or LPS (positive control), washed with PBS containing 1% BSA and 0.02 mM sodium azide, and then incubated with 1:20 dilution of appropriate FITC- or PE-labeled monoclonal antibodies for 30 minutes at 4 degrees C. After an additional wash, the labeled cells are analyzed by flow cytometry on a FACScan (Becton Dickinson).

**[1018] Monocyte activation and/or increased survival.** Assays for molecules that activate (or alternatively, inactivate) monocytes and/or increase monocyte survival (or alternatively, decrease monocyte survival) are known in the art and may routinely be applied to determine whether a molecule of the invention functions as an inhibitor or activator of monocytes. Agonists or antagonists of the invention can be screened using the three assays described below. For each of these assays, Peripheral blood mononuclear cells (PBMC) are purified from single donor leukopacks (American Red Cross, Baltimore, MD) by centrifugation through a Histopaque gradient (Sigma). Monocytes are isolated from PBMC by counterflow centrifugal elutriation.

**[1019] Monocyte Survival Assay.** Human peripheral blood monocytes progressively lose viability when cultured in absence of serum or other stimuli. Their death results from internally regulated processes (apoptosis). Addition to the culture of activating factors, such



as TNF-alpha dramatically improves cell survival and prevents DNA fragmentation. Propidium iodide (PI) staining is used to measure apoptosis as follows. Monocytes are cultured for 48 hours in polypropylene tubes in serum-free medium (positive control), in the presence of 100 ng/ml TNF-alpha (negative control), and in the presence of varying concentrations of the compound to be tested. Cells are suspended at a concentration of  $2 \times 10^6$ /ml in PBS containing PI at a final concentration of 5 µg/ml, and then incubated at room temperature for 5 minutes before FACScan analysis. PI uptake has been demonstrated to correlate with DNA fragmentation in this experimental paradigm.

[1020] Effect on cytokine release. An important function of monocytes/macrophages is their regulatory activity on other cellular populations of the immune system through the release of cytokines after stimulation. An ELISA to measure cytokine release is performed as follows. Human monocytes are incubated at a density of  $5 \times 10^5$  cells/ml with increasing concentrations of agonists or antagonists of the invention and under the same conditions, but in the absence of agonists or antagonists. For IL-12 production, the cells are primed overnight with IFN (100 U/ml) in the presence of agonist or antagonist of the invention. LPS (10 ng/ml) is then added. Conditioned media are collected after 24h and kept frozen until use. Measurement of TNF-alpha, IL-10, MCP-1 and IL-8 is then performed using a commercially available ELISA kit (e.g., R & D Systems (Minneapolis, MN)) and applying the standard protocols provided with the kit.

[1021] Oxidative burst. Purified monocytes are plated in 96-w plate at  $2 \times 10^5$  cell/well. Increasing concentrations of agonists or antagonists of the invention are added to the wells in a total volume of 0.2 ml culture medium (RPMI 1640 + 10% FCS, glutamine and antibiotics). After 3 days incubation, the plates are centrifuged and the medium is removed from the wells. To the macrophage monolayers, 0.2 ml per well of phenol red solution (140 mM NaCl, 10 mM potassium phosphate buffer pH 7.0, 5.5 mM dextrose, 0.56 mM phenol red and 19 U/ml of HRPO) is added, together with the stimulant (200 nM PMA). The plates are incubated at 37°C for 2 hours and the reaction is stopped by adding 20 µl 1N NaOH per well. The absorbance is read at 610 nm. To calculate the amount of  $H_2O_2$  produced by the

macrophages, a standard curve of a  $H_2O_2$  solution of known molarity is performed for each experiment.

[1022] The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

***Example 24: Biological Effects of Agonists or Antagonists of the Invention***

Astrocyte and Neuronal Assays

[1023] Agonists or antagonists of the invention, expressed in *Escherichia coli* and purified as described above, can be tested for activity in promoting the survival, neurite outgrowth, or phenotypic differentiation of cortical neuronal cells and for inducing the proliferation of glial fibrillary acidic protein immunopositive cells, astrocytes. The selection of cortical cells for the bioassay is based on the prevalent expression of FGF-1 and FGF-2 in cortical structures and on the previously reported enhancement of cortical neuronal survival resulting from FGF-2 treatment. A thymidine incorporation assay, for example, can be used to elucidate an agonist or antagonist of the invention's activity on these cells.

[1024] Moreover, previous reports describing the biological effects of FGF-2 (basic FGF) on cortical or hippocampal neurons *in vitro* have demonstrated increases in both neuron survival and neurite outgrowth (Walicke et al., "Fibroblast growth factor promotes survival of dissociated hippocampal neurons and enhances neurite extension." *Proc. Natl. Acad. Sci. USA* 83:3012-3016. (1986), assay herein incorporated by reference in its entirety). However, reports from experiments done on PC-12 cells suggest that these two responses are not necessarily synonymous and may depend on not only which FGF is being tested but also on which receptor(s) are expressed on the target cells. Using the primary cortical neuronal culture paradigm, the ability of an agonist or antagonist of the invention to induce neurite outgrowth can be compared to the response achieved with FGF-2 using, for example, a thymidine incorporation assay.

Fibroblast and endothelial cell assays

[1025] Human lung fibroblasts are obtained from Clonetics (San Diego, CA) and maintained in growth media from Clonetics. Dermal microvascular endothelial cells are obtained from Cell Applications (San Diego, CA). For proliferation assays, the human lung fibroblasts and dermal microvascular endothelial cells can be cultured at 5,000 cells/well in a 96-well plate for one day in growth medium. The cells are then incubated for one day in 0.1% BSA basal medium. After replacing the medium with fresh 0.1% BSA medium, the cells are incubated with the test proteins for 3 days. Alamar Blue (Alamar Biosciences, Sacramento, CA) is added to each well to a final concentration of 10%. The cells are incubated for 4 hr. Cell viability is measured by reading in a CytoFluor fluorescence reader. For the PGE<sub>2</sub> assays, the human lung fibroblasts are cultured at 5,000 cells/well in a 96-well plate for one day. After a medium change to 0.1% BSA basal medium, the cells are incubated with FGF-2 or agonists or antagonists of the invention with or without IL-1 $\alpha$  for 24 hours. The supernatants are collected and assayed for PGE<sub>2</sub> by EIA kit (Cayman, Ann Arbor, MI). For the IL-6 assays, the human lung fibroblasts are cultured at 5,000 cells/well in a 96-well plate for one day. After a medium change to 0.1% BSA basal medium, the cells are incubated with FGF-2 or with or without agonists or antagonists of the invention IL-1 $\alpha$  for 24 hours. The supernatants are collected and assayed for IL-6 by ELISA kit (Endogen, Cambridge, MA).

[1026] Human lung fibroblasts are cultured with FGF-2 or agonists or antagonists of the invention for 3 days in basal medium before the addition of Alamar Blue to assess effects on growth of the fibroblasts. FGF-2 should show a stimulation at 10 - 2500 ng/ml which can be used to compare stimulation with agonists or antagonists of the invention.

#### Parkinson Models.

[1027] The loss of motor function in Parkinson's disease is attributed to a deficiency of striatal dopamine resulting from the degeneration of the nigrostriatal dopaminergic projection neurons. An animal model for Parkinson's that has been extensively characterized involves the systemic administration of 1-methyl-4 phenyl 1,2,3,6-tetrahydropyridine (MPTP). In the CNS, MPTP is taken-up by astrocytes and catabolized by monoamine oxidase B to 1-methyl-4-phenyl pyridine (MPP<sup>+</sup>) and released. Subsequently, MPP<sup>+</sup> is actively accumulated in dopaminergic neurons by the high-affinity reuptake transporter for dopamine. MPP<sup>+</sup> is then concentrated in mitochondria

by the electrochemical gradient and selectively inhibits nicotinamide adenine disphosphate: ubiquinone oxidoreductionase (complex I), thereby interfering with electron transport and eventually generating oxygen radicals.

[1028] It has been demonstrated in tissue culture paradigms that FGF-2 (basic FGF) has trophic activity towards nigral dopaminergic neurons (Ferrari et al., Dev. Biol. 1989). Recently, Dr. Unsicker's group has demonstrated that administering FGF-2 in gel foam implants in the striatum results in the near complete protection of nigral dopaminergic neurons from the toxicity associated with MPTP exposure (Otto and Unsicker, J. Neuroscience, 1990).

[1029] Based on the data with FGF-2, agonists or antagonists of the invention can be evaluated to determine whether it has an action similar to that of FGF-2 in enhancing dopaminergic neuronal survival *in vitro* and it can also be tested *in vivo* for protection of dopaminergic neurons in the striatum from the damage associated with MPTP treatment. The potential effect of an agonist or antagonist of the invention is first examined *in vitro* in a dopaminergic neuronal cell culture paradigm. The cultures are prepared by dissecting the midbrain floor plate from gestation day 14 Wistar rat embryos. The tissue is dissociated with trypsin and seeded at a density of 200,000 cells/cm<sup>2</sup> on polyorthinine-laminin coated glass coverslips. The cells are maintained in Dulbecco's Modified Eagle's medium and F12 medium containing hormonal supplements (N1). The cultures are fixed with paraformaldehyde after 8 days *in vitro* and are processed for tyrosine hydroxylase, a specific marker for dopaminergic neurons, immunohistochemical staining. Dissociated cell cultures are prepared from embryonic rats. The culture medium is changed every third day and the factors are also added at that time.

[1030] Since the dopaminergic neurons are isolated from animals at gestation day 14, a developmental time which is past the stage when the dopaminergic precursor cells are proliferating, an increase in the number of tyrosine hydroxylase immunopositive neurons would represent an increase in the number of dopaminergic neurons surviving *in vitro*. Therefore, if an agonist or antagonist of the invention acts to prolong the survival of dopaminergic neurons, it would suggest that the agonist or antagonist may be involved in Parkinson's Disease.

[1031] The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

***Example 25: The Effect of Agonists or Antagonists of the Invention on the Growth of Vascular Endothelial Cells***

[1032] On day 1, human umbilical vein endothelial cells (HUVEC) are seeded at  $2-5 \times 10^4$  cells/35 mm dish density in M199 medium containing 4% fetal bovine serum (FBS), 16 units/ml heparin, and 50 units/ml endothelial cell growth supplements (ECGS, Biotechnology, Inc.). On day 2, the medium is replaced with M199 containing 10% FBS, 8 units/ml heparin. An agonist or antagonist of the invention, and positive controls, such as VEGF and basic FGF (bFGF) are added, at varying concentrations. On days 4 and 6, the medium is replaced. On day 8, cell number is determined with a Coulter Counter.

[1033] An increase in the number of HUVEC cells indicates that the compound of the invention may proliferate vascular endothelial cells, while a decrease in the number of HUVEC cells indicates that the compound of the invention inhibits vascular endothelial cells.

[1034] The studies described in this example tested activity of a polypeptide of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), agonists, and/or antagonists of the invention.

***Example 26: Rat Corneal Wound Healing Model***

[1035] This animal model shows the effect of an agonist or antagonist of the invention on neovascularization. The experimental protocol includes:

Making a 1-1.5 mm long incision from the center of cornea into the stromal layer.

Inserting a spatula below the lip of the incision facing the outer corner of the eye.

Making a pocket (its base is 1-1.5 mm from the edge of the eye).

Positioning a pellet, containing 50ng- 5ug of an agonist or antagonist of the invention, within the pocket.

[1036] Treatment with an agonist or antagonist of the invention can also be applied topically to the corneal wounds in a dosage range of 20mg - 500mg (daily treatment for five days).

[1037] The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

***Example 27: Diabetic Mouse and Glucocorticoid-Impaired  
Wound Healing Models***

[1038] *Diabetic db+/db+ Mouse Model.*

[1039] To demonstrate that an agonist or antagonist of the invention accelerates the healing process, the genetically diabetic mouse model of wound healing is used. The full thickness wound healing model in the db+/db+ mouse is a well characterized, clinically relevant and reproducible model of impaired wound healing. Healing of the diabetic wound is dependent on formation of granulation tissue and re-epithelialization rather than contraction (Gartner, M.H. *et al.*, *J. Surg. Res.* 52:389 (1992); Greenhalgh, D.G. *et al.*, *Am. J. Pathol.* 136:1235 (1990)).

[1040] The diabetic animals have many of the characteristic features observed in Type II diabetes mellitus. Homozygous (db+/db+) mice are obese in comparison to their normal heterozygous (db+/+m) littermates. Mutant diabetic (db+/db+) mice have a single autosomal recessive mutation on chromosome 4 (db+) (Coleman *et al.* *Proc. Natl. Acad. Sci. USA* 77:283-293 (1982)). Animals show polyphagia, polydipsia and polyuria. Mutant diabetic mice (db+/db+) have elevated blood glucose, increased or normal insulin levels, and suppressed cell-mediated immunity (Mandel *et al.*, *J. Immunol.* 120:1375 (1978); Debray-Sachs, M. *et al.*, *Clin. Exp. Immunol.* 51(1):1-7 (1983); Leiter *et al.*, *Am. J. of Pathol.* 114:46-55 (1985)). Peripheral neuropathy, myocardial complications, and microvascular lesions, basement membrane thickening and glomerular filtration abnormalities have been described in these animals (Norido, F. *et al.*, *Exp. Neurol.* 83(2):221-232 (1984); Robertson *et al.*, *Diabetes* 29(1):60-67 (1980); Giacomelli *et al.*, *Lab Invest.* 40(4):460-473 (1979); Coleman, D.L., *Diabetes* 31 (Suppl):1-6 (1982)). These homozygous diabetic mice develop hyperglycemia that is resistant to insulin analogous to human type II diabetes (Mandel *et al.*, *J. Immunol.* 120:1375-1377 (1978)).

[1041] The characteristics observed in these animals suggests that healing in this model may be similar to the healing observed in human diabetes (Greenhalgh, *et al.*, *Am. J. of Pathol.* 136:1235-1246 (1990)).

[1042] Genetically diabetic female C57BL/KsJ (db+/db+) mice and their non-diabetic (db+/+m) heterozygous littermates are used in this study (Jackson Laboratories). The animals are purchased at 6 weeks of age and are 8 weeks old at the beginning of the study. Animals are individually housed and received food and water ad libitum. All manipulations are performed using aseptic techniques. The experiments are conducted according to the rules and guidelines of Human Genome Sciences, Inc. Institutional Animal Care and Use Committee and the Guidelines for the Care and Use of Laboratory Animals.

[1043] Wounding protocol is performed according to previously reported methods (Tsuboi, R. and Rifkin, D.B., *J. Exp. Med.* 172:245-251 (1990)). Briefly, on the day of wounding, animals are anesthetized with an intraperitoneal injection of Avertin (0.01 mg/mL), 2,2,2-tribromoethanol and 2-methyl-2-butanol dissolved in deionized water. The dorsal region of the animal is shaved and the skin washed with 70% ethanol solution and iodine. The surgical area is dried with sterile gauze prior to wounding. An 8 mm full-thickness wound is then created using a Keyes tissue punch. Immediately following wounding, the surrounding skin is gently stretched to eliminate wound expansion. The wounds are left open for the duration of the experiment. Application of the treatment is given topically for 5 consecutive days commencing on the day of wounding. Prior to treatment, wounds are gently cleansed with sterile saline and gauze sponges.

[1044] Wounds are visually examined and photographed at a fixed distance at the day of surgery and at two day intervals thereafter. Wound closure is determined by daily measurement on days 1-5 and on day 8. Wounds are measured horizontally and vertically using a calibrated Jameson caliper. Wounds are considered healed if granulation tissue is no longer visible and the wound is covered by a continuous epithelium.

[1045] An agonist or antagonist of the invention is administered using at a range different doses, from 4mg to 500mg per wound per day for 8 days in vehicle. Vehicle control groups received 50mL of vehicle solution.

[1046] Animals are euthanized on day 8 with an intraperitoneal injection of sodium pentobarbital (300mg/kg). The wounds and surrounding skin are then harvested for histology and immunohistochemistry. Tissue specimens are placed in 10% neutral buffered formalin in tissue cassettes between biopsy sponges for further processing.

[1047] Three groups of 10 animals each (5 diabetic and 5 non-diabetic controls) are evaluated: 1) Vehicle placebo control, 2) untreated group, and 3) treated group.

[1048] Wound closure is analyzed by measuring the area in the vertical and horizontal axis and obtaining the total square area of the wound. Contraction is then estimated by establishing the differences between the initial wound area (day 0) and that of post treatment (day 8). The wound area on day 1 is 64mm<sup>2</sup>, the corresponding size of the dermal punch. Calculations are made using the following formula:

$$[\text{Open area on day 8}] - [\text{Open area on day 1}] / [\text{Open area on day 1}]$$

[1049] Specimens are fixed in 10% buffered formalin and paraffin embedded blocks are sectioned perpendicular to the wound surface (5mm) and cut using a Reichert-Jung microtome. Routine hematoxylin-eosin (H&E) staining is performed on cross-sections of bisected wounds. Histologic examination of the wounds are used to assess whether the healing process and the morphologic appearance of the repaired skin is altered by treatment with an agonist or antagonist of the invention. This assessment included verification of the presence of cell accumulation, inflammatory cells, capillaries, fibroblasts, re-epithelialization and epidermal maturity (Greenhalgh, D.G. *et al.*, *Am. J. Pathol.* 136:1235 (1990)). A calibrated lens micrometer is used by a blinded observer.

[1050] Tissue sections are also stained immunohistochemically with a polyclonal rabbit anti-human keratin antibody using ABC Elite detection system. Human skin is used as a positive tissue control while non-immune IgG is used as a negative control. Keratinocyte growth is determined by evaluating the extent of reepithelialization of the wound using a calibrated lens micrometer.

[1051] Proliferating cell nuclear antigen/cyclin (PCNA) in skin specimens is demonstrated by using anti-PCNA antibody (1:50) with an ABC Elite detection system. Human colon cancer served as a positive tissue control and human brain tissue is used as a negative tissue control. Each specimen included a section with omission of the primary antibody and substitution with non-immune mouse IgG. Ranking of these sections is based on the extent of proliferation on a scale of 0-8, the lower side of the scale reflecting slight proliferation to the higher side reflecting intense proliferation.

[1052] Experimental data are analyzed using an unpaired t test. A p value of < 0.05 is considered significant.



[1053] *Steroid Impaired Rat Model*

[1054] The inhibition of wound healing by steroids has been well documented in various *in vitro* and *in vivo* systems (Wahl, Glucocorticoids and Wound healing. In: Anti-Inflammatory Steroid Action: Basic and Clinical Aspects. 280-302 (1989); Wahl *et al.*, *J. Immunol.* 115: 476-481 (1975); Werb *et al.*, *J. Exp. Med.* 147:1684-1694 (1978)). Glucocorticoids retard wound healing by inhibiting angiogenesis, decreasing vascular permeability (Ebert *et al.*, *Am. Intern. Med.* 37:701-705 (1952)), fibroblast proliferation, and collagen synthesis (Beck *et al.*, *Growth Factors.* 5: 295-304 (1991); Haynes *et al.*, *J. Clin. Invest.* 61: 703-797 (1978)) and producing a transient reduction of circulating monocytes (Haynes *et al.*, *J. Clin. Invest.* 61: 703-797 (1978); Wahl, "Glucocorticoids and wound healing", In: Antiinflammatory Steroid Action: Basic and Clinical Aspects, Academic Press, New York, pp. 280-302 (1989)). The systemic administration of steroids to impaired wound healing is a well establish phenomenon in rats (Beck *et al.*, *Growth Factors.* 5: 295-304 (1991); Haynes *et al.*, *J. Clin. Invest.* 61: 703-797 (1978); Wahl, "Glucocorticoids and wound healing", In: Antiinflammatory Steroid Action: Basic and Clinical Aspects, Academic Press, New York, pp. 280-302 (1989); Pierce *et al.*, *Proc. Natl. Acad. Sci. USA* 86: 2229-2233 (1989)).

[1055] To demonstrate that an agonist or antagonist of the invention can accelerate the healing process, the effects of multiple topical applications of the agonist or antagonist on full thickness excisional skin wounds in rats in which healing has been impaired by the systemic administration of methylprednisolone is assessed.

[1056] Young adult male Sprague Dawley rats weighing 250-300 g (Charles River Laboratories) are used in this example. The animals are purchased at 8 weeks of age and are 9 weeks old at the beginning of the study. The healing response of rats is impaired by the systemic administration of methylprednisolone (17mg/kg/rat intramuscularly) at the time of wounding. Animals are individually housed and received food and water *ad libitum*. All manipulations are performed using aseptic techniques. This study is conducted according to the rules and guidelines of Human Genome Sciences, Inc. Institutional Animal Care and Use Committee and the Guidelines for the Care and Use of Laboratory Animals.

[1057] The wounding protocol is followed according to section A, above. On the day of wounding, animals are anesthetized with an intramuscular injection of ketamine (50 mg/kg) and xylazine (5 mg/kg). The dorsal region of the animal is shaved and the skin washed with 70% ethanol and iodine solutions. The surgical area is dried with sterile gauze prior to wounding. An

8 mm full-thickness wound is created using a Keyes tissue punch. The wounds are left open for the duration of the experiment. Applications of the testing materials are given topically once a day for 7 consecutive days commencing on the day of wounding and subsequent to methylprednisolone administration. Prior to treatment, wounds are gently cleansed with sterile saline and gauze sponges.

[1058] Wounds are visually examined and photographed at a fixed distance at the day of wounding and at the end of treatment. Wound closure is determined by daily measurement on days 1-5 and on day 8. Wounds are measured horizontally and vertically using a calibrated Jameson caliper. Wounds are considered healed if granulation tissue is no longer visible and the wound is covered by a continuous epithelium.

[1059] The agonist or antagonist of the invention is administered using at a range different doses, from 4mg to 500mg per wound per day for 8 days in vehicle. Vehicle control groups received 50mL of vehicle solution.

[1060] Animals are euthanized on day 8 with an intraperitoneal injection of sodium pentobarbital (300mg/kg). The wounds and surrounding skin are then harvested for histology. Tissue specimens are placed in 10% neutral buffered formalin in tissue cassettes between biopsy sponges for further processing.

[1061] Three groups of 10 animals each (5 with methylprednisolone and 5 without glucocorticoid) are evaluated: 1) Untreated group 2) Vehicle placebo control 3) treated groups.

[1062] Wound closure is analyzed by measuring the area in the vertical and horizontal axis and obtaining the total area of the wound. Closure is then estimated by establishing the differences between the initial wound area (day 0) and that of post treatment (day 8). The wound area on day 1 is 64mm<sup>2</sup>, the corresponding size of the dermal punch. Calculations are made using the following formula:

$$[\text{Open area on day 8}] - [\text{Open area on day 1}] / [\text{Open area on day 1}]$$

[1063] Specimens are fixed in 10% buffered formalin and paraffin embedded blocks are sectioned perpendicular to the wound surface (5mm) and cut using an Olympus microtome. Routine hematoxylin-eosin (H&E) staining is performed on cross-sections of bisected wounds. Histologic examination of the wounds allows assessment of whether the healing process and the morphologic appearance of the repaired skin is improved by treatment with an agonist or

antagonist of the invention. A calibrated lens micrometer is used by a blinded observer to determine the distance of the wound gap.

[1064] Experimental data are analyzed using an unpaired t test. A p value of  $< 0.05$  is considered significant.

[1065] The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

### ***Example 28: Lymphadema Animal Model***

[1066] The purpose of this experimental approach is to create an appropriate and consistent lymphedema model for testing the therapeutic effects of an agonist or antagonist of the invention in lymphangiogenesis and re-establishment of the lymphatic circulatory system in the rat hind limb. Effectiveness is measured by swelling volume of the affected limb, quantification of the amount of lymphatic vasculature, total blood plasma protein, and histopathology. Acute lymphedema is observed for 7-10 days. Perhaps more importantly, the chronic progress of the edema is followed for up to 3-4 weeks.

[1067] Prior to beginning surgery, blood sample is drawn for protein concentration analysis. Male rats weighing approximately ~350g are dosed with Pentobarbital. Subsequently, the right legs are shaved from knee to hip. The shaved area is swabbed with gauze soaked in 70% EtOH. Blood is drawn for serum total protein testing. Circumference and volumetric measurements are made prior to injecting dye into paws after marking 2 measurement levels (0.5 cm above heel, at mid-pt of dorsal paw). The intradermal dorsum of both right and left paws are injected with 0.05 ml of 1% Evan's Blue. Circumference and volumetric measurements are then made following injection of dye into paws.

[1068] Using the knee joint as a landmark, a mid-leg inguinal incision is made circumferentially allowing the femoral vessels to be located. Forceps and hemostats are used to dissect and separate the skin flaps. After locating the femoral vessels, the lymphatic vessel that runs along side and underneath the vessel(s) is located. The main lymphatic vessels in this area are then electrically coagulated or suture ligated.

[1069] Using a microscope, muscles in back of the leg (near the semitendinosus and adductors) are bluntly dissected. The popliteal lymph node is then located. The 2 proximal and 2 distal lymphatic vessels and distal blood supply of the popliteal node are then ligated by suturing. The popliteal lymph node, and any accompanying adipose tissue, is then removed by cutting connective tissues.

[1070] Care is taken to control any mild bleeding resulting from this procedure. After lymphatics are occluded, the skin flaps are sealed by using liquid skin (Vetbond) (AJ Buck). The separated skin edges are sealed to the underlying muscle tissue while leaving a gap of ~0.5 cm around the leg. Skin also may be anchored by suturing to underlying muscle when necessary.

[1071] To avoid infection, animals are housed individually with mesh (no bedding). Recovering animals are checked daily through the optimal edematous peak, which typically occurred by day 5-7. The plateau edematous peak are then observed. To evaluate the intensity of the lymphedema, the circumference and volumes of 2 designated places on each paw before operation and daily for 7 days are measured. The effect of plasma proteins on lymphedema is determined and whether protein analysis is a useful testing perimeter is also investigated. The weights of both control and edematous limbs are evaluated at 2 places. Analysis is performed in a blind manner.

[1072] Circumference Measurements: Under brief gas anesthetic to prevent limb movement, a cloth tape is used to measure limb circumference. Measurements are done at the ankle bone and dorsal paw by 2 different people and those 2 readings are averaged. Readings are taken from both control and edematous limbs.

[1073] Volumetric Measurements: On the day of surgery, animals are anesthetized with Pentobarbital and are tested prior to surgery. For daily volumetrics animals are under brief halothane anesthetic (rapid immobilization and quick recovery), and both legs are shaved and equally marked using waterproof marker on legs. Legs are first dipped in water, then dipped into instrument to each marked level then measured by Buxco edema software(Chen/Victor). Data is recorded by one person, while the other is dipping the limb to marked area.

[1074] Blood-plasma protein measurements: Blood is drawn, spun, and serum separated prior to surgery and then at conclusion for total protein and  $\text{Ca}^{2+}$  comparison.

[1075] Limb Weight Comparison: After drawing blood, the animal is prepared for tissue collection. The limbs are amputated using a quillitine, then both experimental and control legs

are cut at the ligature and weighed. A second weighing is done as the tibio-cacaneal joint is disarticulated and the foot is weighed.

[1076] Histological Preparations: The transverse muscle located behind the knee (popliteal) area is dissected and arranged in a metal mold, filled with freezeGel, dipped into cold methylbutane, placed into labeled sample bags at - 80EC until sectioning. Upon sectioning, the muscle is observed under fluorescent microscopy for lymphatics..

[1077] The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

***Example 29: Suppression of TNF alpha-induced adhesion molecule  
expression by an Agonist or Antagonist of the Invention***

[1078] The recruitment of lymphocytes to areas of inflammation and angiogenesis involves specific receptor-ligand interactions between cell surface adhesion molecules (CAMs) on lymphocytes and the vascular endothelium. The adhesion process, in both normal and pathological settings, follows a multi-step cascade that involves intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial leukocyte adhesion molecule-1 (E-selectin) expression on endothelial cells (EC). The expression of these molecules and others on the vascular endothelium determines the efficiency with which leukocytes may adhere to the local vasculature and extravasate into the local tissue during the development of an inflammatory response. The local concentration of cytokines and growth factor participate in the modulation of the expression of these CAMs.

[1079] Tumor necrosis factor alpha (TNF-a), a potent proinflammatory cytokine, is a stimulator of all three CAMs on endothelial cells and may be involved in a wide variety of inflammatory responses, often resulting in a pathological outcome.

[1080] The potential of an agonist or antagonist of the invention to mediate a suppression of TNF-a induced CAM expression can be examined. A modified ELISA assay which uses ECs as a solid phase absorbent is employed to measure the amount of CAM expression on TNF-a treated ECs when co-stimulated with a member of the FGF family of proteins.

[1081] To perform the experiment, human umbilical vein endothelial cell (HUVEC) cultures are obtained from pooled cord harvests and maintained in growth medium (EGM-2; Clonetics, San Diego, CA) supplemented with 10% FCS and 1% penicillin/streptomycin in a 37 degree C humidified incubator containing 5% CO<sub>2</sub>. HUVECs are seeded in 96-well plates at concentrations of  $1 \times 10^4$  cells/well in EGM medium at 37 degree C for 18-24 hrs or until confluent. The monolayers are subsequently washed 3 times with a serum-free solution of RPMI-1640 supplemented with 100 U/ml penicillin and 100 mg/ml streptomycin, and treated with a given cytokine and/or growth factor(s) for 24 h at 37 degree C. Following incubation, the cells are then evaluated for CAM expression.

[1082] Human Umbilical Vein Endothelial cells (HUVECs) are grown in a standard 96 well plate to confluence. Growth medium is removed from the cells and replaced with 90 ul of 199 Medium (10% FBS). Samples for testing and positive or negative controls are added to the plate in triplicate (in 10 ul volumes). Plates are incubated at 37 degree C for either 5 h (selectin and integrin expression) or 24 h (integrin expression only). Plates are aspirated to remove medium and 100 µl of 0.1% paraformaldehyde-PBS(with Ca<sup>++</sup> and Mg<sup>++</sup>) is added to each well. Plates are held at 4°C for 30 min.

[1083] Fixative is then removed from the wells and wells are washed 1X with PBS(+Ca,Mg)+0.5% BSA and drained. Do not allow the wells to dry. Add 10 µl of diluted primary antibody to the test and control wells. Anti-ICAM-1-Biotin, Anti-VCAM-1-Biotin and Anti-E-selectin-Biotin are used at a concentration of 10 µg/ml (1:10 dilution of 0.1 mg/ml stock antibody). Cells are incubated at 37°C for 30 min. in a humidified environment. Wells are washed X3 with PBS(+Ca,Mg)+0.5% BSA.

[1084] Then add 20 µl of diluted ExtrAvidin-Alkaline Phosphatase (1:5,000 dilution) to each well and incubated at 37°C for 30 min. Wells are washed X3 with PBS(+Ca,Mg)+0.5% BSA. 1 tablet of p-Nitrophenol Phosphate pNPP is dissolved in 5 ml of glycine buffer (pH 10.4). 100 µl of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphatase in glycine buffer:  $1:5,000 (10^0) > 10^{-0.5} > 10^{-1} > 10^{-1.5}$ . 5 µl of each dilution is added to triplicate wells and the resulting AP content in each well is 5.50 ng, 1.74 ng, 0.55 ng, 0.18 ng. 100 µl of pNPP reagent must then be added to each of the standard wells. The plate must be incubated at 37°C for 4h. A volume of 50 µl of 3M NaOH is added to all wells. The results are quantified on a plate reader at

405 nm. The background subtraction option is used on blank wells filled with glycine buffer only. The template is set up to indicate the concentration of AP-conjugate in each standard well [ 5.50 ng; 1.74 ng; 0.55 ng; 0.18 ng]. Results are indicated as amount of bound AP-conjugate in each sample.

[1085] The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

### ***Example 30: Production Of Polypeptide of the Invention For High-Throughput Screening Assays***

[1086] The following protocol produces a supernatant containing polypeptide of the present invention to be tested. This supernatant can then be used in the Screening Assays described in Examples 32-41.

[1087] First, dilute Poly-D-Lysine (644 587 Boehringer-Mannheim) stock solution (1mg/ml in PBS) 1:20 in PBS (w/o calcium or magnesium 17-516F Biowhittaker) for a working solution of 50ug/ml. Add 200 ul of this solution to each well (24 well plates) and incubate at RT for 20 minutes. Be sure to distribute the solution over each well (note: a 12-channel pipetter may be used with tips on every other channel). Aspirate off the Poly-D-Lysine solution and rinse with 1ml PBS (Phosphate Buffered Saline). The PBS should remain in the well until just prior to plating the cells and plates may be poly-lysine coated in advance for up to two weeks.

[1088] Plate 293T cells (do not carry cells past P+20) at  $2 \times 10^5$  cells/well in .5ml DMEM(Dulbecco's Modified Eagle Medium)(with 4.5 G/L glucose and L-glutamine (12-604F Biowhittaker))/10% heat inactivated FBS(14-503F Biowhittaker)/1x Penstrep(17-602E Biowhittaker). Let the cells grow overnight.

[1089] The next day, mix together in a sterile solution basin: 300 ul Lipofectamine (18324-012 Gibco/BRL) and 5ml Optimem I (31985070 Gibco/BRL)/96-well plate. With a small volume multi-channel pipetter, aliquot approximately 2ug of an expression vector containing a polynucleotide insert, produced by the methods described in Examples 8-10, into an appropriately labeled 96-well round bottom plate. With a multi-channel pipetter, add

50ul of the Lipofectamine/Optimem I mixture to each well. Pipette up and down gently to mix. Incubate at RT 15-45 minutes. After about 20 minutes, use a multi-channel pipetter to add 150ul Optimem I to each well. As a control, one plate of vector DNA lacking an insert should be transfected with each set of transfections.

[1090] Preferably, the transfection should be performed by tag-teaming the following tasks. By tag-teaming, hands on time is cut in half, and the cells do not spend too much time on PBS. First, person A aspirates off the media from four 24-well plates of cells, and then person B rinses each well with .5-1ml PBS. Person A then aspirates off PBS rinse, and person B, using a 12-channel pipetter with tips on every other channel, adds the 200ul of DNA/Lipofectamine/Optimem I complex to the odd wells first, then to the even wells, to each row on the 24-well plates. Incubate at 37 degree C for 6 hours.

[1091] While cells are incubating, prepare appropriate media, either 1%BSA in DMEM with 1x penstrep, or HGS CHO-5 media (116.6 mg/L of CaCl<sub>2</sub> (anhyd); 0.00130 mg/L CuSO<sub>4</sub>·5H<sub>2</sub>O; 0.050 mg/L of Fe(NO<sub>3</sub>)<sub>3</sub>·9H<sub>2</sub>O; 0.417 mg/L of FeSO<sub>4</sub>·7H<sub>2</sub>O; 311.80 mg/L of KCl; 28.64 mg/L of MgCl<sub>2</sub>; 48.84 mg/L of MgSO<sub>4</sub>; 6995.50 mg/L of NaCl; 2400.0 mg/L of NaHCO<sub>3</sub>; 62.50 mg/L of NaH<sub>2</sub>PO<sub>4</sub>·H<sub>2</sub>O; 71.02 mg/L of Na<sub>2</sub>HPO<sub>4</sub>; .4320 mg/L of ZnSO<sub>4</sub>·7H<sub>2</sub>O; .002 mg/L of Arachidonic Acid ; 1.022 mg/L of Cholesterol; .070 mg/L of DL-alpha-Tocopherol-Acetate; 0.0520 mg/L of Linoleic Acid; 0.010 mg/L of Linolenic Acid; 0.010 mg/L of Myristic Acid; 0.010 mg/L of Oleic Acid; 0.010 mg/L of Palmitic Acid; 0.010 mg/L of Palmitic Acid; 100 mg/L of Pluronic F-68; 0.010 mg/L of Stearic Acid; 2.20 mg/L of Tween 80; 4551 mg/L of D-Glucose; 130.85 mg/ml of L- Alanine; 147.50 mg/ml of L-Arginine-HCL; 7.50 mg/ml of L-Asparagine-H<sub>2</sub>O; 6.65 mg/ml of L-Aspartic Acid; 29.56 mg/ml of L-Cystine-2HCL-H<sub>2</sub>O; 31.29 mg/ml of L-Cystine-2HCL; 7.35 mg/ml of L- Glutamic Acid; 365.0 mg/ml of L-Glutamine; 18.75 mg/ml of Glycine; 52.48 mg/ml of L- Histidine-HCL-H<sub>2</sub>O; 106.97 mg/ml of L-Isoleucine; 111.45 mg/ml of L-Leucine; 163.75 mg/ml of L-Lysine HCL; 32.34 mg/ml of L-Methionine; 68.48 mg/ml of L-Phenylalanine; 40.0 mg/ml of L-Proline; 26.25 mg/ml of L-Serine; 101.05 mg/ml of L-Threonine; 19.22 mg/ml of L-Tryptophan; 91.79 mg/ml of L-Tyrosine-2Na-2H<sub>2</sub>O; and 99.65 mg/ml of L- Valine; 0.0035 mg/L of Biotin; 3.24 mg/L of D-Ca Pantothenate; 11.78 mg/L of Choline Chloride; 4.65 mg/L of Folic Acid; 15.60 mg/L of i-Inositol; 3.02 mg/L of Niacinamide; 3.00



mg/L of Pyridoxal HCL; 0.031 mg/L of Pyridoxine HCL; 0.319 mg/L of Riboflavin; 3.17 mg/L of Thiamine HCL; 0.365 mg/L of Thymidine; 0.680 mg/L of Vitamin B<sub>12</sub>; 25 mM of HEPES Buffer; 2.39 mg/L of Na Hypoxanthine; 0.105 mg/L of Lipoic Acid; 0.081 mg/L of Sodium Putrescine-2HCL; 55.0 mg/L of Sodium Pyruvate; 0.0067 mg/L of Sodium Selenite; 20uM of Ethanolamine; 0.122 mg/L of Ferric Citrate; 41.70 mg/L of Methyl-B-Cyclodextrin complexed with Linoleic Acid; 33.33 mg/L of Methyl-B-Cyclodextrin complexed with Oleic Acid; 10 mg/L of Methyl-B-Cyclodextrin complexed with Retinal Acetate. Adjust osmolarity to 327 mOsm) with 2mm glutamine and 1x penstrep. (BSA (81-068-3 Bayer) 100gm dissolved in 1L DMEM for a 10% BSA stock solution). Filter the media and collect 50 ul for endotoxin assay in 15ml polystyrene conical.

[1092] The transfection reaction is terminated, preferably by tag-teaming, at the end of the incubation period. Person A aspirates off the transfection media, while person B adds 1.5ml appropriate media to each well. Incubate at 37 degree C for 45 or 72 hours depending on the media used: 1%BSA for 45 hours or CHO-5 for 72 hours.

[1093] On day four, using a 300ul multichannel pipetter, aliquot 600ul in one 1ml deep well plate and the remaining supernatant into a 2ml deep well. The supernatants from each well can then be used in the assays described in Examples 32-39.

[1094] It is specifically understood that when activity is obtained in any of the assays described below using a supernatant, the activity originates from either the polypeptide of the present invention directly (e.g., as a secreted protein) or by polypeptide of the present invention inducing expression of other proteins, which are then secreted into the supernatant. Thus, the invention further provides a method of identifying the protein in the supernatant characterized by an activity in a particular assay.

### ***Example 31: Construction of GAS Reporter Construct***

[1095] One signal transduction pathway involved in the differentiation and proliferation of cells is called the Jaks-STATs pathway. Activated proteins in the Jaks-STATs pathway bind to gamma activation site "GAS" elements or interferon-sensitive responsive element ("ISRE"), located in the promoter of many genes. The binding of a protein to these elements alter the expression of the associated gene.

[1096] GAS and ISRE elements are recognized by a class of transcription factors called Signal Transducers and Activators of Transcription, or "STATs." There are six members of the STATs family. Stat1 and Stat3 are present in many cell types, as is Stat2 (as response to IFN-alpha is widespread). Stat4 is more restricted and is not in many cell types though it has been found in T helper class I, cells after treatment with IL-12. Stat5 was originally called mammary growth factor, but has been found at higher concentrations in other cells including myeloid cells. It can be activated in tissue culture cells by many cytokines.

[1097] The STATs are activated to translocate from the cytoplasm to the nucleus upon tyrosine phosphorylation by a set of kinases known as the Janus Kinase ("Jaks") family. Jaks represent a distinct family of soluble tyrosine kinases and include Tyk2, Jak1, Jak2, and Jak3. These kinases display significant sequence similarity and are generally catalytically inactive in resting cells.

[1098] The Jaks are activated by a wide range of receptors summarized in the Table below. (Adapted from review by Schidler and Darnell, Ann. Rev. Biochem. 64:621-51 (1995)). A cytokine receptor family, capable of activating Jaks, is divided into two groups: (a) Class 1 includes receptors for IL-2, IL-3, IL-4, IL-6, IL-7, IL-9, IL-11, IL-12, IL-15, Epo, PRL, GH, G-CSF, GM-CSF, LIF, CNTF, and thrombopoietin; and (b) Class 2 includes IFN-a, IFN-g, and IL-10. The Class 1 receptors share a conserved cysteine motif (a set of four conserved cysteines and one tryptophan) and a WSXWS motif (a membrane proximal region encoding Trp-Ser-Xaa-Trp-Ser (SEQ ID NO: 2)).

[1099] Thus, on binding of a ligand to a receptor, Jaks are activated, which in turn activate STATs, which then translocate and bind to GAS elements. This entire process is encompassed in the Jaks-STATs signal transduction pathway.

[1100] Therefore, activation of the Jaks-STATs pathway, reflected by the binding of the GAS or the ISRE element, can be used to indicate proteins involved in the proliferation and differentiation of cells. For example, growth factors and cytokines are known to activate the Jaks-STATs pathway (See Table below). Thus, by using GAS elements linked to reporter molecules, activators of the Jaks-STATs pathway can be identified.

<u>Ligand</u>	<u>tyk2</u>	<u>JAKs</u> <u>Jak1</u>	<u>Jak2</u>	<u>Jak3</u>	<u>STATS</u>	<u>GAS(elements) or ISRE</u>
<u>IFN family</u>						
IFN-a/B	+	+	-	-	1,2,3	ISRE
IFN-g	+	+	-	-	1	GAS (IRF1>Lys6>IFP)
IL-10	+	?	?	-	1,3	
<u>gp130 family</u>						
IL-6 (Pleiotropic)	+	+	+	?	1,3	GAS (IRF1>Lys6>IFP)
IL-11(Pleiotropic)	?	+	?	?	1,3	
OnM(Pleiotropic)	?	+	+	?	1,3	
LIF(Pleiotropic)	?	+	+	?	1,3	
CNTF(Pleiotropic)	-/+	+	+	?	1,3	
G-CSF(Pleiotropic)	?	+	?	?	1,3	
IL-12(Pleiotropic)	+	-	+	+	1,3	
<u>g-C family</u>						
IL-2 (lymphocytes)	-	+	-	+	1,3,5	GAS
IL-4 (lymph/myeloid)	-	+	-	+	6	GAS (IRF1 = IFP
>>Ly6)(IgH)						
IL-7 (lymphocytes)	-	+	-	+	5	GAS
IL-9 (lymphocytes)	-	+	-	+	5	GAS
IL-13 (lymphocyte)	-	+	?	?	6	GAS
IL-15	?	+	?	+	5	GAS
<u>gp140 family</u>						
IL-3 (myeloid)	-	-	+	-	5	GAS (IRF1>IFP>>Ly6)
IL-5 (myeloid)	-	-	+	-	5	GAS
GM-CSF (myeloid)	-	-	+	-	5	GAS
<u>Growth hormone family</u>						
GH	?	-	+	-	5	
PRL	?	+/-	+	-	1,3,5	
EPO	?	-	+	-	5	GAS(B-
CAS>IRF1=IFP>>Ly6)						
<u>Receptor Tyrosine Kinases</u>						
EGF	?	+	+	-	1,3	GAS (IRF1)
PDGF	?	+	+	-	1,3	
CSF-1	?	+	+	-	1,3	GAS (not IRF1)

[1101] To construct a synthetic GAS containing promoter element, which is used in the Biological Assays described in Examples 32-33, a PCR based strategy is employed to generate a GAS-SV40 promoter sequence. The 5' primer contains four tandem copies of the GAS binding site found in the IRF1 promoter and previously demonstrated to bind STATs upon induction with a range of cytokines (Rothman et al., Immunity 1:457-468 (1994).), although other GAS or ISRE elements can be used instead. The 5' primer also contains 18bp of sequence complementary to the SV40 early promoter sequence and is flanked with an XhoI site. The sequence of the 5' primer is:

5':GCGCCTCGAGATTTCCCCGAAATCTAGATTTCCCCGAAATGATTTCCCCG  
AAATGATTTCCCCGAAATATCTGCCATCTCAATTAG:3' (SEQ ID NO: 3)

[1102] The downstream primer is complementary to the SV40 promoter and is flanked with a Hind III site: 5':GCGGCAAGCTTTTGTCAAAGCCTAGGC:3' (SEQ ID NO: 4)

[1103] PCR amplification is performed using the SV40 promoter template present in the B-gal:promoter plasmid obtained from Clontech. The resulting PCR fragment is digested with XhoI/Hind III and subcloned into BLSK2-. (Stratagene.) Sequencing with forward and reverse primers confirms that the insert contains the following sequence:

5':CTCGAGATTTCCCCGAAATCTAGATTTCCCCGAAATGATTTCCCCGAAAT  
GATTTCCCCGAAATATCTGCCATCTCAATTAGTCAGCAACCATAGTCCCGC  
CCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCC  
GCCCCATGGCTGACTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTC  
GGCCTCTGAGCTATTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGG  
CTTTTGCAAAAAGCTT:3' (SEQ ID NO: 5)

[1104] With this GAS promoter element linked to the SV40 promoter, a GAS:SEAP2 reporter construct is next engineered. Here, the reporter molecule is a secreted alkaline phosphatase, or "SEAP." Clearly, however, any reporter molecule can be instead of SEAP, in this or in any of the other Examples. Well known reporter molecules that can be used instead of SEAP include chloramphenicol acetyltransferase (CAT), luciferase, alkaline phosphatase, B-galactosidase, green fluorescent protein (GFP), or any protein detectable by an antibody.

[1105] The above sequence confirmed synthetic GAS-SV40 promoter element is subcloned into the pSEAP-Promoter vector obtained from Clontech using HindIII and XhoI, effectively replacing the SV40 promoter with the amplified GAS:SV40 promoter

element, to create the GAS-SEAP vector. However, this vector does not contain a neomycin resistance gene, and therefore, is not preferred for mammalian expression systems.

[1106] Thus, in order to generate mammalian stable cell lines expressing the GAS-SEAP reporter, the GAS-SEAP cassette is removed from the GAS-SEAP vector using *SalI* and *NotI*, and inserted into a backbone vector containing the neomycin resistance gene, such as pGFP-1 (Clontech), using these restriction sites in the multiple cloning site, to create the GAS-SEAP/Neo vector. Once this vector is transfected into mammalian cells, this vector can then be used as a reporter molecule for GAS binding as described in Examples 32-33.

[1107] Other constructs can be made using the above description and replacing GAS with a different promoter sequence. For example, construction of reporter molecules containing EGR and NF-KB promoter sequences are described in Examples 34 and 35. However, many other promoters can be substituted using the protocols described in these Examples. For instance, SRE, IL-2, NFAT, or Osteocalcin promoters can be substituted, alone or in combination (e.g., GAS/NF-KB/EGR, GAS/NF-KB, IL-2/NFAT, or NF-KB/GAS). Similarly, other cell lines can be used to test reporter construct activity, such as HELA (epithelial), HUVEC (endothelial), Reh (B-cell), Saos-2 (osteoblast), HUVAC (aortic), or Cardiomyocyte.

### ***Example 32: High-Throughput Screening Assay for T-cell Activity.***

[1108] The following protocol is used to assess T-cell activity by identifying factors, and determining whether supernate containing a polypeptide of the invention proliferates and/or differentiates T-cells. T-cell activity is assessed using the GAS/SEAP/Neo construct produced in Example 31. Thus, factors that increase SEAP activity indicate the ability to activate the Jaks-STATS signal transduction pathway. The T-cell used in this assay is Jurkat T-cells (ATCC Accession No. TIB-152), although Molt-3 cells (ATCC Accession No. CRL-1552) and Molt-4 cells (ATCC Accession No. CRL-1582) cells can also be used.

[1109] Jurkat T-cells are lymphoblastic CD4+ Th1 helper cells. In order to generate stable cell lines, approximately 2 million Jurkat cells are transfected with the GAS-2036

SEAP/neo vector using DMRIE-C (Life Technologies)(transfection procedure described below). The transfected cells are seeded to a density of approximately 20,000 cells per well and transfectants resistant to 1 mg/ml gentamicin selected. Resistant colonies are expanded and then tested for their response to increasing concentrations of interferon gamma. The dose response of a selected clone is demonstrated.

[1110] Specifically, the following protocol will yield sufficient cells for 75 wells containing 200 ul of cells. Thus, it is either scaled up, or performed in multiple to generate sufficient cells for multiple 96 well plates. Jurkat cells are maintained in RPMI + 10% serum with 1%Pen-Strep. Combine 2.5 mls of OPTI-MEM (Life Technologies) with 10 ug of plasmid DNA in a T25 flask. Add 2.5 ml OPTI-MEM containing 50 ul of DMRIE-C and incubate at room temperature for 15-45 mins.

[1111] During the incubation period, count cell concentration, spin down the required number of cells ( $10^7$  per transfection), and resuspend in OPTI-MEM to a final concentration of  $10^7$  cells/ml. Then add 1ml of  $1 \times 10^7$  cells in OPTI-MEM to T25 flask and incubate at 37 degree C for 6 hrs. After the incubation, add 10 ml of RPMI + 15% serum.

[1112] The Jurkat:GAS-SEAP stable reporter lines are maintained in RPMI + 10% serum, 1 mg/ml Gentamicin, and 1% Pen-Strep. These cells are treated with supernatants containing polypeptide of the present invention or polypeptide of the present invention induced polypeptides as produced by the protocol described in Example 30.

[1113] On the day of treatment with the supernatant, the cells should be washed and resuspended in fresh RPMI + 10% serum to a density of 500,000 cells per ml. The exact number of cells required will depend on the number of supernatants being screened. For one 96 well plate, approximately 10 million cells (for 10 plates, 100 million cells) are required.

[1114] Transfer the cells to a triangular reservoir boat, in order to dispense the cells into a 96 well dish, using a 12 channel pipette. Using a 12 channel pipette, transfer 200 ul of cells into each well (therefore adding 100, 000 cells per well).

[1115] After all the plates have been seeded, 50 ul of the supernatants are transferred directly from the 96 well plate containing the supernatants into each well using a 12 channel pipette. In addition, a dose of exogenous interferon gamma (0.1, 1.0, 10 ng) is added to wells H9, H10, and H11 to serve as additional positive controls for the assay.

[1116] The 96 well dishes containing Jurkat cells treated with supernatants are placed in an incubator for 48 hrs (note: this time is variable between 48-72 hrs). 35 ul samples from each well are then transferred to an opaque 96 well plate using a 12 channel pipette. The opaque plates should be covered (using sellophane covers) and stored at -20 degree C until SEAP assays are performed according to Example 36. The plates containing the remaining treated cells are placed at 4 degree C and serve as a source of material for repeating the assay on a specific well if desired.

[1117] As a positive control, 100 Unit/ml interferon gamma can be used which is known to activate Jurkat T cells. Over 30 fold induction is typically observed in the positive control wells.

[1118] The above protocol may be used in the generation of both transient, as well as, stable transfected cells, which would be apparent to those of skill in the art.

### ***Example 33: High-Throughput Screening Assay Identifying Myeloid Activity***

[1119] The following protocol is used to assess myeloid activity of polypeptide of the present invention by determining whether polypeptide of the present invention proliferates and/or differentiates myeloid cells. Myeloid cell activity is assessed using the GAS/SEAP/Neo construct produced in Example 31. Thus, factors that increase SEAP activity indicate the ability to activate the Jaks-STATS signal transduction pathway. The myeloid cell used in this assay is U937, a pre-monocyte cell line, although TF-1, HL60, or KG1 can be used.

[1120] To transiently transfect U937 cells with the GAS/SEAP/Neo construct produced in Example 31, a DEAE-Dextran method (Kharbanda et. al., 1994, Cell Growth & Differentiation, 5:259-265) is used. First, harvest  $2 \times 10^7$  U937 cells and wash with PBS. The U937 cells are usually grown in RPMI 1640 medium containing 10% heat-inactivated fetal bovine serum (FBS) supplemented with 100 units/ml penicillin and 100 mg/ml streptomycin.

[1121] Next, suspend the cells in 1 ml of 20 mM Tris-HCl (pH 7.4) buffer containing 0.5 mg/ml DEAE-Dextran, 8 ug GAS-SEAP2 plasmid DNA, 140 mM NaCl, 5 mM KCl,

375  $\mu\text{M}$   $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$ , 1 mM  $\text{MgCl}_2$ , and 675  $\mu\text{M}$   $\text{CaCl}_2$ . Incubate at 37 degrees C for 45 min.

[1122] Wash the cells with RPMI 1640 medium containing 10% FBS and then resuspend in 10 ml complete medium and incubate at 37 degree C for 36 hr.

[1123] The GAS-SEAP/U937 stable cells are obtained by growing the cells in 400  $\mu\text{g}/\text{ml}$  G418. The G418-free medium is used for routine growth but every one to two months, the cells should be re-grown in 400  $\mu\text{g}/\text{ml}$  G418 for couple of passages.

[1124] These cells are tested by harvesting  $1 \times 10^8$  cells (this is enough for ten 96-well plates assay) and wash with PBS. Suspend the cells in 200 ml above described growth medium, with a final density of  $5 \times 10^5$  cells/ml. Plate 200  $\mu\text{l}$  cells per well in the 96-well plate (or  $1 \times 10^5$  cells/well).

[1125] Add 50  $\mu\text{l}$  of the supernatant prepared by the protocol described in Example 30. Incubate at 37 degree C for 48 to 72 hr. As a positive control, 100 Unit/ml interferon gamma can be used which is known to activate U937 cells. Over 30 fold induction is typically observed in the positive control wells. SEAP assay the supernatant according to the protocol described in Example 36.

***Example 34: High-Throughput Screening Assay Identifying Neuronal Activity.***

[1126] When cells undergo differentiation and proliferation, a group of genes are activated through many different signal transduction pathways. One of these genes, EGR1 (early growth response gene 1), is induced in various tissues and cell types upon activation. The promoter of EGR1 is responsible for such induction. Using the EGR1 promoter linked to reporter molecules, activation of cells can be assessed by polypeptide of the present invention.

[1127] Particularly, the following protocol is used to assess neuronal activity in PC12 cell lines. PC12 cells (rat pheochromocytoma cells) are known to proliferate and/or differentiate by activation with a number of mitogens, such as TPA (tetradecanoyl phorbol acetate), NGF (nerve growth factor), and EGF (epidermal growth factor). The EGR1 gene expression is activated during this treatment. Thus, by stably transfecting PC12 cells with



a construct containing an EGR promoter linked to SEAP reporter, activation of PC12 cells by polypeptide of the present invention can be assessed.

[1128] The EGR/SEAP reporter construct can be assembled by the following protocol. The EGR-1 promoter sequence (-633 to +1)(Sakamoto K et al., Oncogene 6:867-871 (1991)) can be PCR amplified from human genomic DNA using the following primers:

5' GCGCTCGAGGGATGACAGCGATAGAACCCCGG-3' (SEQ ID NO: 6)

5' GCGAAGCTTCGCGACTCCCGGATCCGCCTC-3' (SEQ ID NO: 7)

[1129] Using the GAS:SEAP/Neo vector produced in Example 31, EGR1 amplified product can then be inserted into this vector. Linearize the GAS:SEAP/Neo vector using restriction enzymes XhoI/HindIII, removing the GAS/SV40 stuffer. Restrict the EGR1 amplified product with these same enzymes. Ligate the vector and the EGR1 promoter.

[1130] To prepare 96 well-plates for cell culture, two mls of a coating solution (1:30 dilution of collagen type I (Upstate Biotech Inc. Cat#08-115) in 30% ethanol (filter sterilized)) is added per one 10 cm plate or 50 ml per well of the 96-well plate, and allowed to air dry for 2 hr.

[1131] PC12 cells are routinely grown in RPMI-1640 medium (Bio Whittaker) containing 10% horse serum (JRH BIOSCIENCES, Cat. # 12449-78P), 5% heat-inactivated fetal bovine serum (FBS) supplemented with 100 units/ml penicillin and 100 ug/ml streptomycin on a precoated 10 cm tissue culture dish. One to four split is done every three to four days. Cells are removed from the plates by scraping and resuspended with pipetting up and down for more than 15 times.

[1132] Transfect the EGR/SEAP/Neo construct into PC12 using the Lipofectamine protocol described in Example 30. EGR-SEAP/PC12 stable cells are obtained by growing the cells in 300 ug/ml G418. The G418-free medium is used for routine growth but every one to two months, the cells should be re-grown in 300 ug/ml G418 for couple of passages.

[1133] To assay for neuronal activity, a 10 cm plate with cells around 70 to 80% confluent is screened by removing the old medium. Wash the cells once with PBS (Phosphate buffered saline). Then starve the cells in low serum medium (RPMI-1640 containing 1% horse serum and 0.5% FBS with antibiotics) overnight.

[1134] The next morning, remove the medium and wash the cells with PBS. Scrape off the cells from the plate, suspend the cells well in 2 ml low serum medium. Count the cell number and add more low serum medium to reach final cell density as  $5 \times 10^5$  cells/ml.

[1135] Add 200  $\mu$ l of the cell suspension to each well of 96-well plate (equivalent to  $1 \times 10^5$  cells/well). Add 50  $\mu$ l supernatant produced by Example 30, 37 degree C for 48 to 72 hr. As a positive control, a growth factor known to activate PC12 cells through EGR can be used, such as 50 ng/ $\mu$ l of Neuronal Growth Factor (NGF). Over fifty-fold induction of SEAP is typically seen in the positive control wells. SEAP assay the supernatant according to Example 36.

### ***Example 35: High-Throughput Screening Assay for T-cell Activity***

[1136] NF-KB (Nuclear Factor KB) is a transcription factor activated by a wide variety of agents including the inflammatory cytokines IL-1 and TNF, CD30 and CD40, lymphotoxin-alpha and lymphotoxin-beta, by exposure to LPS or thrombin, and by expression of certain viral gene products. As a transcription factor, NF-KB regulates the expression of genes involved in immune cell activation, control of apoptosis (NF-KB appears to shield cells from apoptosis), B and T-cell development, anti-viral and antimicrobial responses, and multiple stress responses.

[1137] In non-stimulated conditions, NF-KB is retained in the cytoplasm with I-KB (Inhibitor KB). However, upon stimulation, I-KB is phosphorylated and degraded, causing NF-KB to shuttle to the nucleus, thereby activating transcription of target genes. Target genes activated by NF-KB include IL-2, IL-6, GM-CSF, ICAM-1 and class 1 MHC.

[1138] Due to its central role and ability to respond to a range of stimuli, reporter constructs utilizing the NF-KB promoter element are used to screen the supernatants produced in Example 30. Activators or inhibitors of NF-KB would be useful in treating, preventing, and/or diagnosing diseases. For example, inhibitors of NF-KB could be used to treat those diseases related to the acute or chronic activation of NF-KB, such as rheumatoid arthritis.

[1139] To construct a vector containing the NF-KB promoter element, a PCR based strategy is employed. The upstream primer contains four tandem copies of the NF-KB binding site (GGGGACTTTCCC) (SEQ ID NO: 8), 18 bp of sequence complementary to the 5' end of the SV40 early promoter sequence, and is flanked with an XhoI site:

5':GCGGCCTCGAGGGGACTTTCCCGGGGACTTTCCGGGGACTTTCCGGGAC  
TTTCCATCCTGCCATCTCAATTAG:3' (SEQ ID NO: 9)

[1140] The downstream primer is complementary to the 3' end of the SV40 promoter and is flanked with a Hind III site:

5':GCGGCAAGCTTTTGTCAAAGCCTAGGC:3' (SEQ ID NO: 4)

[1141] PCR amplification is performed using the SV40 promoter template present in the pB-gal:promoter plasmid obtained from Clontech. The resulting PCR fragment is digested with XhoI and Hind III and subcloned into BLSK2-. (Stratagene) Sequencing with the T7 and T3 primers confirms the insert contains the following sequence:

5':CTCGAGGGGACTTTCCCGGGGACTTTCCGGGGACTTTCCGGGACTTTCC  
ATCTGCCATCTCAATTAGTCAGCAACCATAGTCCCGCCCCTAACTCCGCCC  
ATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTGA  
CTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTAT  
TCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAAGC  
TT:3' (SEQ ID NO: 10)

[1142] Next, replace the SV40 minimal promoter element present in the pSEAP2-promoter plasmid (Clontech) with this NF-KB/SV40 fragment using XhoI and HindIII. However, this vector does not contain a neomycin resistance gene, and therefore, is not preferred for mammalian expression systems.

[1143] In order to generate stable mammalian cell lines, the NF-KB/SV40/SEAP cassette is removed from the above NF-KB/SEAP vector using restriction enzymes SalI and NotI, and inserted into a vector containing neomycin resistance. Particularly, the NF-KB/SV40/SEAP cassette was inserted into pGFP-1 (Clontech), replacing the GFP gene, after restricting pGFP-1 with SalI and NotI.

[1144] Once NF-KB/SV40/SEAP/Neo vector is created, stable Jurkat T-cells are created and maintained according to the protocol described in Example 32. Similarly, the method for assaying supernatants with these stable Jurkat T-cells is also described in

Example 32. As a positive control, exogenous TNF alpha (0.1, 1, 10 ng) is added to wells H9, H10, and H11, with a 5-10 fold activation typically observed.

***Example 36: Assay for SEAP Activity***

[1145] As a reporter molecule for the assays described in Examples 32-35, SEAP activity is assayed using the Tropix Phospho-light Kit (Cat. BP-400) according to the following general procedure. The Tropix Phospho-light Kit supplies the Dilution, Assay, and Reaction Buffers used below.

[1146] Prime a dispenser with the 2.5x Dilution Buffer and dispense 15 ul of 2.5x dilution buffer into Optiplates containing 35 ul of a supernatant. Seal the plates with a plastic sealer and incubate at 65 degree C for 30 min. Separate the Optiplates to avoid uneven heating.

[1147] Cool the samples to room temperature for 15 minutes. Empty the dispenser and prime with the Assay Buffer. Add 50 ml Assay Buffer and incubate at room temperature 5 min. Empty the dispenser and prime with the Reaction Buffer (see the Table below). Add 50 ul Reaction Buffer and incubate at room temperature for 20 minutes. Since the intensity of the chemiluminescent signal is time dependent, and it takes about 10 minutes to read 5 plates on a luminometer, thus one should treat 5 plates at each time and start the second set 10 minutes later.

[1148] Read the relative light unit in the luminometer. Set H12 as blank, and print the results. An increase in chemiluminescence indicates reporter activity.

**Reaction Buffer Formulation:**

# of plates	Rxn buffer diluent (ml)	CSPD (ml)
10	60	3
11	65	3.25
12	70	3.5
13	75	3.75
14	80	4
15	85	4.25
16	90	4.5
17	95	4.75

18	100	5
19	105	5.25
20	110	5.5
21	115	5.75
22	120	6
23	125	6.25
24	130	6.5
25	135	6.75
26	140	7
27	145	7.25
28	150	7.5
29	155	7.75
30	160	8
31	165	8.25
32	170	8.5
33	175	8.75
34	180	9
35	185	9.25
36	190	9.5
37	195	9.75
38	200	10
39	205	10.25
40	210	10.5
41	215	10.75
42	220	11
43	225	11.25
44	230	11.5
45	235	11.75
46	240	12
47	245	12.25
48	250	12.5
49	255	12.75
50	260	13

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***Example 37: High-Throughput Screening Assay Identifying Changes in Small Molecule Concentration and Membrane Permeability***

[1149] Binding of a ligand to a receptor is known to alter intracellular levels of small molecules, such as calcium, potassium, sodium, and pH, as well as alter membrane potential. These alterations can be measured in an assay to identify supernatants which bind to receptors of a particular cell. Although the following protocol describes an assay for calcium, this protocol can easily be modified to detect changes in potassium, sodium, pH, membrane potential, or any other small molecule which is detectable by a fluorescent probe.

[1150] The following assay uses Fluorometric Imaging Plate Reader ("FLIPR") to measure changes in fluorescent molecules (Molecular Probes) that bind small molecules. Clearly, any fluorescent molecule detecting a small molecule can be used instead of the calcium fluorescent molecule, fluo-4 (Molecular Probes, Inc.; catalog no. F-14202), used here.

[1151] For adherent cells, seed the cells at 10,000 -20,000 cells/well in a Co-star black 96-well plate with clear bottom. The plate is incubated in a CO<sub>2</sub> incubator for 20 hours. The adherent cells are washed two times in Biotek washer with 200 ul of HBSS (Hank's Balanced Salt Solution) leaving 100 ul of buffer after the final wash.

[1152] A stock solution of 1 mg/ml fluo-4 is made in 10% pluronic acid DMSO. To load the cells with fluo-4, 50 ul of 12 ug/ml fluo-4 is added to each well. The plate is incubated at 37 degrees C in a CO<sub>2</sub> incubator for 60 min. The plate is washed four times in the Biotek washer with HBSS leaving 100 ul of buffer.

[1153] For non-adherent cells, the cells are spun down from culture media. Cells are re-suspended to  $2-5 \times 10^6$  cells/ml with HBSS in a 50-ml conical tube. 4 ul of 1 mg/ml fluo-4 solution in 10% pluronic acid DMSO is added to each ml of cell suspension. The tube is then placed in a 37 degrees C water bath for 30-60 min. The cells are washed twice with HBSS, resuspended to  $1 \times 10^6$  cells/ml, and dispensed into a microplate, 100 ul/well. The plate is centrifuged at 1000 rpm for 5 min. The plate is then washed once in Denley Cell Wash with 200 ul, followed by an aspiration step to 100 ul final volume.

[1154] For a non-cell based assay, each well contains a fluorescent molecule, such as fluo-4. The supernatant is added to the well, and a change in fluorescence is detected.

[1155] To measure the fluorescence of intracellular calcium, the FLIPR is set for the following parameters: (1) System gain is 300-800 mW; (2) Exposure time is 0.4 second; (3) Camera F/stop is F/2; (4) Excitation is 488 nm; (5) Emission is 530 nm; and (6) Sample addition is 50 ul. Increased emission at 530 nm indicates an extracellular signaling event caused by the a molecule, either polypeptide of the present invention or a molecule induced by polypeptide of the present invention, which has resulted in an increase in the intracellular  $\text{Ca}^{++}$  concentration.

***Example 38: High-Throughput Screening Assay Identifying Tyrosine Kinase Activity***

[1156] The Protein Tyrosine Kinases (PTK) represent a diverse group of transmembrane and cytoplasmic kinases. Within the Receptor Protein Tyrosine Kinase (RPTK) group are receptors for a range of mitogenic and metabolic growth factors including the PDGF, FGF, EGF, NGF, HGF and Insulin receptor subfamilies. In addition there are a large family of RPTKs for which the corresponding ligand is unknown. Ligands for RPTKs include mainly secreted small proteins, but also membrane-bound and extracellular matrix proteins.

[1157] Activation of RPTK by ligands involves ligand-mediated receptor dimerization, resulting in transphosphorylation of the receptor subunits and activation of the cytoplasmic tyrosine kinases. The cytoplasmic tyrosine kinases include receptor associated tyrosine kinases of the src-family (e.g., src, yes, lck, lyn, fyn) and non-receptor linked and cytosolic protein tyrosine kinases, such as the Jak family, members of which mediate signal transduction triggered by the cytokine superfamily of receptors (e.g., the Interleukins, Interferons, GM-CSF, and Leptin).

[1158] Because of the wide range of known factors capable of stimulating tyrosine kinase activity, identifying whether polypeptide of the present invention or a molecule induced by polypeptide of the present invention is capable of activating tyrosine kinase signal transduction pathways is of interest. Therefore, the following protocol is designed to identify such molecules capable of activating the tyrosine kinase signal transduction pathways.

[1159] Seed target cells (e.g., primary keratinocytes) at a density of approximately 25,000 cells per well in a 96 well Loprodyne Silent Screen Plates purchased from Nalge Nunc (Naperville, IL). The plates are sterilized with two 30 minute rinses with 100% ethanol, rinsed with water and dried overnight. Some plates are coated for 2 hr with 100 ml of cell culture grade type I collagen (50 mg/ml), gelatin (2%) or polylysine (50 mg/ml), all of which can be purchased from Sigma Chemicals (St. Louis, MO) or 10% Matrigel purchased from Becton Dickinson (Bedford, MA), or calf serum, rinsed with PBS and stored at 4 degree C. Cell growth on these plates is assayed by seeding 5,000 cells/well in growth medium and indirect quantitation of cell number through use of alamarBlue as described by the manufacturer Alamar Biosciences, Inc. (Sacramento, CA) after 48 hr. Falcon plate covers #3071 from Becton Dickinson (Bedford, MA) are used to cover the Loprodyne Silent Screen Plates. Falcon Microtest III cell culture plates can also be used in some proliferation experiments.

[1160] To prepare extracts, A431 cells are seeded onto the nylon membranes of Loprodyne plates (20,000/200ml/well) and cultured overnight in complete medium. Cells are quiesced by incubation in serum-free basal medium for 24 hr. After 5-20 minutes treatment with EGF (60ng/ml) or 50 ul of the supernatant produced in Example 30, the medium was removed and 100 ml of extraction buffer ((20 mM HEPES pH 7.5, 0.15 M NaCl, 1% Triton X-100, 0.1% SDS, 2 mM Na<sub>3</sub>VO<sub>4</sub>, 2 mM Na<sub>4</sub>P<sub>2</sub>O<sub>7</sub> and a cocktail of protease inhibitors (# 1836170) obtained from Boehringer Mannheim (Indianapolis, IN)) is added to each well and the plate is shaken on a rotating shaker for 5 minutes at 4°C. The plate is then placed in a vacuum transfer manifold and the extract filtered through the 0.45 mm membrane bottoms of each well using house vacuum. Extracts are collected in a 96-well catch/assay plate in the bottom of the vacuum manifold and immediately placed on ice. To obtain extracts clarified by centrifugation, the content of each well, after detergent solubilization for 5 minutes, is removed and centrifuged for 15 minutes at 4 degree C at 16,000 x g.

[1161] Test the filtered extracts for levels of tyrosine kinase activity. Although many methods of detecting tyrosine kinase activity are known, one method is described here.

[1162] Generally, the tyrosine kinase activity of a supernatant is evaluated by determining its ability to phosphorylate a tyrosine residue on a specific substrate (a biotinylated peptide). Biotinylated peptides that can be used for this purpose include



PSK1 (corresponding to amino acids 6-20 of the cell division kinase cdc2-p34) and PSK2 (corresponding to amino acids 1-17 of gastrin). Both peptides are substrates for a range of tyrosine kinases and are available from Boehringer Mannheim.

[1163] The tyrosine kinase reaction is set up by adding the following components in order. First, add 10ul of 5uM Biotinylated Peptide, then 10ul ATP/Mg<sub>2</sub><sup>+</sup> (5mM ATP/50mM MgCl<sub>2</sub>), then 10ul of 5x Assay Buffer (40mM imidazole hydrochloride, pH7.3, 40 mM beta-glycerophosphate, 1mM EGTA, 100mM MgCl<sub>2</sub>, 5 mM MnCl<sub>2</sub>, 0.5 mg/ml BSA), then 5ul of Sodium Vanadate(1mM), and then 5ul of water. Mix the components gently and preincubate the reaction mix at 30 degree C for 2 min. Initiate the reaction by adding 10ul of the control enzyme or the filtered supernatant.

[1164] The tyrosine kinase assay reaction is then terminated by adding 10 ul of 120mM EDTA and place the reactions on ice.

[1165] Tyrosine kinase activity is determined by transferring 50 ul aliquot of reaction mixture to a microtiter plate (MTP) module and incubating at 37 degree C for 20 min. This allows the streptavidin coated 96 well plate to associate with the biotinylated peptide. Wash the MTP module with 300ul/well of PBS four times. Next add 75 ul of anti-phosphotyrosine antibody conjugated to horse radish peroxidase(anti-P-Tyr-POD(0.5u/ml)) to each well and incubate at 37 degree C for one hour. Wash the well as above.

[1166] Next add 100ul of peroxidase substrate solution (Boehringer Mannheim) and incubate at room temperature for at least 5 mins (up to 30 min). Measure the absorbance of the sample at 405 nm by using ELISA reader. The level of bound peroxidase activity is quantitated using an ELISA reader and reflects the level of tyrosine kinase activity.

### ***Example 39: High-Throughput Screening Assay Identifying Phosphorylation Activity***

[1167] As a potential alternative and/or complement to the assay of protein tyrosine kinase activity described in Example 38, an assay which detects activation (phosphorylation) of major intracellular signal transduction intermediates can also be used. For example, as described below one particular assay can detect tyrosine phosphorylation of the Erk-1 and Erk-2 kinases. However, phosphorylation of other

molecules, such as Raf, JNK, p38 MAP, Map kinase kinase (MEK), MEK kinase, Src, Muscle specific kinase (MuSK), IRAK, Tec, and Janus, as well as any other phosphoserine, phosphotyrosine, or phosphothreonine molecule, can be detected by substituting these molecules for Erk-1 or Erk-2 in the following assay.

[1168] Specifically, assay plates are made by coating the wells of a 96-well ELISA plate with 0.1ml of protein G (1ug/ml) for 2 hr at room temp, (RT). The plates are then rinsed with PBS and blocked with 3% BSA/PBS for 1 hr at RT. The protein G plates are then treated with 2 commercial monoclonal antibodies (100ng/well) against Erk-1 and Erk-2 (1 hr at RT) (Santa Cruz Biotechnology). (To detect other molecules, this step can easily be modified by substituting a monoclonal antibody detecting any of the above described molecules.) After 3-5 rinses with PBS, the plates are stored at 4 degree C until use.

[1169] A431 cells are seeded at 20,000/well in a 96-well Loprodyne filterplate and cultured overnight in growth medium. The cells are then starved for 48 hr in basal medium (DMEM) and then treated with EGF (6ng/well) or 50 ul of the supernatants obtained in Example 30 for 5-20 minutes. The cells are then solubilized and extracts filtered directly into the assay plate.

[1170] After incubation with the extract for 1 hr at RT, the wells are again rinsed. As a positive control, a commercial preparation of MAP kinase (10ng/well) is used in place of A431 extract. Plates are then treated with a commercial polyclonal (rabbit) antibody (1ug/ml) which specifically recognizes the phosphorylated epitope of the Erk-1 and Erk-2 kinases (1 hr at RT). This antibody is biotinylated by standard procedures. The bound polyclonal antibody is then quantitated by successive incubations with Europium-streptavidin and Europium fluorescence enhancing reagent in the Wallac DELFIA instrument (time-resolved fluorescence). An increased fluorescent signal over background indicates a phosphorylation by polypeptide of the present invention or a molecule induced by polypeptide of the present invention.

***Example 40: Assay for the Stimulation of Bone Marrow CD34+ Cell Proliferation***

[1171] This assay is based on the ability of human CD34+ to proliferate in the presence of hematopoietic growth factors and evaluates the ability of isolated polypeptides expressed in mammalian cells to stimulate proliferation of CD34+ cells.

[1172] It has been previously shown that most mature precursors will respond to only a single signal. More immature precursors require at least two signals to respond. Therefore, to test the effect of polypeptides on hematopoietic activity of a wide range of progenitor cells, the assay contains a given polypeptide in the presence or absence of other hematopoietic growth factors. Isolated cells are cultured for 5 days in the presence of Stem Cell Factor (SCF) in combination with tested sample. SCF alone has a very limited effect on the proliferation of bone marrow (BM) cells, acting in such conditions only as a "survival" factor. However, combined with any factor exhibiting stimulatory effect on these cells (e.g., IL-3), SCF will cause a synergistic effect. Therefore, if the tested polypeptide has a stimulatory effect on hematopoietic progenitors, such activity can be easily detected. Since normal BM cells have a low level of cycling cells, it is likely that any inhibitory effect of a given polypeptide, or agonists or antagonists thereof, might not be detected. Accordingly, assays for an inhibitory effect on progenitors is preferably tested in cells that are first subjected to *in vitro* stimulation with SCF+IL-3, and then contacted with the compound that is being evaluated for inhibition of such induced proliferation.

[1173] Briefly, CD34+ cells are isolated using methods known in the art. The cells are thawed and resuspended in medium (QBSF 60 serum-free medium with 1% L-glutamine (500ml) Quality Biological, Inc., Gaithersburg, MD Cat# 160-204-101). After several gentle centrifugation steps at 200 x g, cells are allowed to rest for one hour. The cell count is adjusted to  $2.5 \times 10^5$  cells/ml. During this time, 100  $\mu$ l of sterile water is added to the peripheral wells of a 96-well plate. The cytokines that can be tested with a given polypeptide in this assay is rhSCF (R&D Systems, Minneapolis, MN, Cat# 255-SC) at 50 ng/ml alone and in combination with rhSCF and rhIL-3 (R&D Systems, Minneapolis, MN, Cat# 203-ML) at 30 ng/ml. After one hour, 10  $\mu$ l of prepared cytokines, 50  $\mu$ l of the supernatants prepared in Example 30 (supernatants at 1:2 dilution = 50  $\mu$ l) and 20  $\mu$ l of diluted cells are added to the media which is already present in the wells to allow for a final total volume of 100  $\mu$ l. The plates are then placed in a 37°C/5% CO<sub>2</sub> incubator for five days.

[1174] Eighteen hours before the assay is harvested, 0.5  $\mu$ Ci/well of [ $^3$ H] Thymidine is added in a 10  $\mu$ l volume to each well to determine the proliferation rate. The experiment is terminated by harvesting the cells from each 96-well plate to a filtermat using the Tomtec Harvester 96. After harvesting, the filtermats are dried, trimmed and placed into OmniFilter assemblies consisting of one OmniFilter plate and one OmniFilter Tray. 60  $\mu$ l Microscint is added to each well and the plate sealed with TopSeal-A press-on sealing film. A bar code 15 sticker is affixed to the first plate for counting. The sealed plates are then loaded and the level of radioactivity determined via the Packard Top Count and the printed data collected for analysis. The level of radioactivity reflects the amount of cell proliferation.

[1175] The studies described in this example test the activity of a given polypeptide to stimulate bone marrow CD34+ cell proliferation. One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof. As a nonlimiting example, potential antagonists tested in this assay would be expected to inhibit cell proliferation in the presence of cytokines and/or to increase the inhibition of cell proliferation in the presence of cytokines and a given polypeptide. In contrast, potential agonists tested in this assay would be expected to enhance cell proliferation and/or to decrease the inhibition of cell proliferation in the presence of cytokines and a given polypeptide.

[1176] The ability of a gene to stimulate the proliferation of bone marrow CD34+ cells indicates that polynucleotides and polypeptides corresponding to the gene are useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the "Immune Activity" and "Infectious Disease" sections above, and elsewhere herein.

[1177] ***Example 41: Assay for Extracellular Matrix Enhanced Cell Response (EMECR)***

[1178] The objective of the Extracellular Matrix Enhanced Cell Response (EMECCR) assay is to identify gene products (e.g., isolated polypeptides) that act on the hematopoietic stem cells in the context of the extracellular matrix (ECM) induced signal.

[1179] Cells respond to the regulatory factors in the context of signal(s) received from the surrounding microenvironment. For example, fibroblasts, and endothelial and epithelial stem cells fail to replicate in the absence of signals from the ECM. Hematopoietic stem cells can undergo self-renewal in the bone marrow, but not in *in vitro* suspension culture. The ability of stem cells to undergo self-renewal *in vitro* is dependent upon their interaction with the stromal cells and the ECM protein fibronectin (fn). Adhesion of cells to fn is mediated by the  $\alpha_5\beta_1$  and  $\alpha_4\beta_1$  integrin receptors, which are expressed by human and mouse hematopoietic stem cells. The factor(s) which integrate with the ECM environment and are responsible for stimulating stem cell self-renewal have not yet been identified. Discovery of such factors should be of great interest in gene therapy and bone marrow transplant applications

[1180] Briefly, polystyrene, non tissue culture treated, 96-well plates are coated with fn fragment at a coating concentration of  $0.2 \mu\text{g}/\text{cm}^2$ . Mouse bone marrow cells are plated (1,000 cells/well) in 0.2 ml of serum-free medium. Cells cultured in the presence of IL-3 (5 ng/ml) + SCF (50 ng/ml) would serve as the positive control, conditions under which little self-renewal but pronounced differentiation of the stem cells is to be expected. Gene products of the invention (e.g., including, but not limited to, polynucleotides and polypeptides of the present invention, and supernatants produced in Example 30), are tested with appropriate negative controls in the presence and absence of SCF (5.0 ng/ml), where test factor supernatants represent 10% of the total assay volume. The plated cells are then allowed to grow by incubating in a low oxygen environment (5%  $\text{CO}_2$ , 7%  $\text{O}_2$ , and 88%  $\text{N}_2$ ) tissue culture incubator for 7 days. The number of proliferating cells within the wells is then quantitated by measuring thymidine incorporation into cellular DNA. Verification of the positive hits in the assay will require phenotypic characterization of the cells, which can be accomplished by scaling up of the culture system and using appropriate antibody reagents against cell surface antigens and FACSscan.

[1181] One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof.

[1182] If a particular polypeptide of the present invention is found to be a stimulator of hematopoietic progenitors, polynucleotides and polypeptides corresponding to the gene encoding said polypeptide may be useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the "Immune Activity" and "Infectious Disease" sections above, and elsewhere herein. The gene product may also be useful in the expansion of stem cells and committed progenitors of various blood lineages, and in the differentiation and/or proliferation of various cell types.

[1183] Additionally, the polynucleotides and/or polypeptides of the gene of interest and/or agonists and/or antagonists thereof, may also be employed to inhibit the proliferation and differentiation of hematopoietic cells and therefore may be employed to protect bone marrow stem cells from chemotherapeutic agents during chemotherapy. This antiproliferative effect may allow administration of higher doses of chemotherapeutic agents and, therefore, more effective chemotherapeutic treatment.

[1184] Moreover, polynucleotides and polypeptides corresponding to the gene of interest may also be useful for the treatment and diagnosis of hematopoietic related disorders such as, for example, anemia, pancytopenia, leukopenia, thrombocytopenia or leukemia since stromal cells are important in the production of cells of hematopoietic lineages. The uses include bone marrow cell ex-vivo culture, bone marrow transplantation, bone marrow reconstitution, radiotherapy or chemotherapy of neoplasia.

***Example 42: Human Dermal Fibroblast and Aortic Smooth Muscle Cell  
Proliferation***

[1185] The polypeptide of interest is added to cultures of normal human dermal fibroblasts (NHDF) and human aortic smooth muscle cells (AoSMC) and two co-assays are performed with each sample. The first assay examines the effect of the polypeptide of interest on the proliferation of normal human dermal fibroblasts (NHDF) or aortic smooth muscle cells (AoSMC). Aberrant growth of fibroblasts or smooth muscle cells is a part of several pathological processes, including fibrosis, and restenosis. The second assay examines IL6 production by both NHDF and SMC. IL6 production is an indication of

functional activation. Activated cells will have increased production of a number of cytokines and other factors, which can result in a proinflammatory or immunomodulatory outcome. Assays are run with and without co-TNF $\alpha$  stimulation, in order to check for costimulatory or inhibitory activity.

[1186] Briefly, on day 1, 96-well black plates are set up with 1000 cells/well (NHDF) or 2000 cells/well (AoSMC) in 100  $\mu$ l culture media. NHDF culture media contains: Clonetics FB basal media, 1mg/ml hFGF, 5mg/ml insulin, 50mg/ml gentamycin, 2%FBS, while AoSMC culture media contains Clonetics SM basal media, 0.5  $\mu$ g/ml hEGF, 5mg/ml insulin, 1 $\mu$ g/ml hFGF, 50mg/ml gentamycin, 50  $\mu$ g/ml Amphotericin B, 5%FBS. After incubation at 37°C for at least 4-5 hours culture media is aspirated and replaced with growth arrest media. Growth arrest media for NHDF contains fibroblast basal media, 50mg/ml gentamycin, 2% FBS, while growth arrest media for AoSMC contains SM basal media, 50mg/ml gentamycin, 50 $\mu$ g/ml Amphotericin B, 0.4% FBS. Incubate at 37 °C until day 2.

[1187] On day 2, serial dilutions and templates of the polypeptide of interest are designed such that they always include media controls and known-protein controls. For both stimulation and inhibition experiments, proteins are diluted in growth arrest media. For inhibition experiments, TNF $\alpha$  is added to a final concentration of 2ng/ml (NHDF) or 5ng/ml (AoSMC). Add 1/3 vol media containing controls or polypeptides of the present invention and incubate at 37 degrees C/5% CO<sub>2</sub> until day 5.

[1188] Transfer 60 $\mu$ l from each well to another labeled 96-well plate, cover with a plate-sealer, and store at 4 degrees C until Day 6 (for IL6 ELISA). To the remaining 100  $\mu$ l in the cell culture plate, aseptically add Alamar Blue in an amount equal to 10% of the culture volume (10 $\mu$ l). Return plates to incubator for 3 to 4 hours. Then measure fluorescence with excitation at 530nm and emission at 590nm using the CytoFluor. This yields the growth stimulation/inhibition data.

[1189] On day 5, the IL6 ELISA is performed by coating a 96 well plate with 50-100  $\mu$ l/well of Anti-Human IL6 Monoclonal antibody diluted in PBS, pH 7.4, incubate ON at room temperature.

[1190] On day 6, empty the plates into the sink and blot on paper towels. Prepare Assay Buffer containing PBS with 4% BSA. Block the plates with 200  $\mu$ l/well of Pierce Super Block blocking buffer in PBS for 1-2 hr and then wash plates with wash buffer

(PBS, 0.05% Tween-20). Blot plates on paper towels. Then add 50  $\mu$ l/well of diluted Anti-Human IL-6 Monoclonal, Biotin-labeled antibody at 0.50 mg/ml. Make dilutions of IL-6 stock in media (30, 10, 3, 1, 0.3, 0 ng/ml). Add duplicate samples to top row of plate. Cover the plates and incubate for 2 hours at RT on shaker.

[1191] Plates are washed with wash buffer and blotted on paper towels. Dilute EU-labeled Streptavidin 1:1000 in Assay buffer, and add 100  $\mu$ l/well. Cover the plate and incubate 1 h at RT. Plates are again washed with wash buffer and blotted on paper towels.

[1192] Add 100  $\mu$ l/well of Enhancement Solution. Shake for 5 minutes. Read the plate on the Wallac DELFIA Fluorometer. Readings from triplicate samples in each assay were tabulated and averaged.

[1193] A positive result in this assay suggests AoSMC cell proliferation and that the polypeptide of the present invention may be involved in dermal fibroblast proliferation and/or smooth muscle cell proliferation. A positive result also suggests many potential uses of polypeptides, polynucleotides, agonists and/or antagonists of the polynucleotide/polypeptide of the present invention which gives a positive result. For example, inflammation and immune responses, wound healing, and angiogenesis, as detailed throughout this specification. Particularly, polypeptides of the present invention and polynucleotides of the present invention may be used in wound healing and dermal regeneration, as well as the promotion of vasculogenesis, both of the blood vessels and lymphatics. The growth of vessels can be used in the treatment of, for example, cardiovascular diseases. Additionally, antagonists of polypeptides and polynucleotides of the invention may be useful in treating diseases, disorders, and/or conditions which involve angiogenesis by acting as an anti-vascular agent (e.g., anti-angiogenesis). These diseases, disorders, and/or conditions are known in the art and/or are described herein, such as, for example, malignancies, solid tumors, benign tumors, for example hemangiomas, acoustic neuromas, neurofibromas, trachomas, and pyogenic granulomas; arteriosclerotic plaques; ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, retrolental fibroplasia, rubeosis, retinoblastoma, uveitis and Pterygia (abnormal blood vessel growth) of the eye; rheumatoid arthritis; psoriasis; delayed wound healing; endometriosis; vasculogenesis; granulations; hypertrophic scars (keloids); nonunion fractures; scleroderma; trachoma; vascular adhesions; myocardial angiogenesis; coronary



collaterals; cerebral collaterals; arteriovenous malformations; ischemic limb angiogenesis; Osler-Webber Syndrome; plaque neovascularization; telangiectasia; hemophilic joints; angiofibroma; fibromuscular dysplasia; wound granulation; Crohn's disease; and atherosclerosis. Moreover, antagonists of polypeptides and polynucleotides of the invention may be useful in treating anti-hyperproliferative diseases and/or anti-inflammatory known in the art and/or described herein.

[1194] One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof.

***Example 43: Cellular Adhesion Molecule (CAM) Expression on  
Endothelial Cells***

[1195] The recruitment of lymphocytes to areas of inflammation and angiogenesis involves specific receptor-ligand interactions between cell surface adhesion molecules (CAMs) on lymphocytes and the vascular endothelium. The adhesion process, in both normal and pathological settings, follows a multi-step cascade that involves intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial leukocyte adhesion molecule-1 (E-selectin) expression on endothelial cells (EC). The expression of these molecules and others on the vascular endothelium determines the efficiency with which leukocytes may adhere to the local vasculature and extravasate into the local tissue during the development of an inflammatory response. The local concentration of cytokines and growth factor participate in the modulation of the expression of these CAMs.

[1196] Briefly, endothelial cells (e.g., Human Umbilical Vein Endothelial cells (HUVECs)) are grown in a standard 96 well plate to confluence, growth medium is removed from the cells and replaced with 100  $\mu$ l of 199 Medium (10% fetal bovine serum (FBS)). Samples for testing and positive or negative controls are added to the plate in triplicate (in 10  $\mu$ l volumes). Plates are then incubated at 37°C for either 5 h (selectin and integrin expression) or 24 h (integrin expression only). Plates are aspirated to remove medium and 100  $\mu$ l of 0.1% paraformaldehyde-PBS(with Ca<sup>++</sup> and Mg<sup>++</sup>) is added to

each well. Plates are held at 4°C for 30 min. Fixative is removed from the wells and wells are washed 1X with PBS(+Ca,Mg) + 0.5% BSA and drained. 10 µl of diluted primary antibody is added to the test and control wells. Anti-ICAM-1-Biotin, Anti-VCAM-1-Biotin and Anti-E-selectin-Biotin are used at a concentration of 10 µg/ml (1:10 dilution of 0.1 mg/ml stock antibody). Cells are incubated at 37°C for 30 min. in a humidified environment. Wells are washed three times with PBS(+Ca,Mg) + 0.5% BSA. 20 µl of diluted ExtrAvidin-Alkaline Phosphatase (1:5,000 dilution, referred to herein as the working dilution) are added to each well and incubated at 37°C for 30 min. Wells are washed three times with PBS(+Ca,Mg)+0.5% BSA. Dissolve 1 tablet of p-Nitrophenol Phosphate pNPP per 5 ml of glycine buffer (pH 10.4). 100 µl of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphatase in glycine buffer: 1:5,000 ( $10^0$ ) >  $10^{-0.5}$  >  $10^{-1}$  >  $10^{-1.5}$ . 5 µl of each dilution is added to triplicate wells and the resulting AP content in each well is 5.50 ng, 1.74 ng, 0.55 ng, 0.18 ng. 100 µl of pNPP reagent is then added to each of the standard wells. The plate is incubated at 37°C for 4h. A volume of 50 µl of 3M NaOH is added to all wells. The plate is read on a plate reader at 405 nm using the background subtraction option on blank wells filled with glycine buffer only. Additionally, the template is set up to indicate the concentration of AP-conjugate in each standard well [ 5.50 ng; 1.74 ng; 0.55 ng; 0.18 ng]. Results are indicated as amount of bound AP-conjugate in each sample.

#### ***Example 44: Alamar Blue Endothelial Cells Proliferation Assay***

[1197] This assay may be used to quantitatively determine protein mediated inhibition of bFGF-induced proliferation of Bovine Lymphatic Endothelial Cells (LECs), Bovine Aortic Endothelial Cells (BAECs) or Human Microvascular Uterine Myometrial Cells (UTMECs). This assay incorporates a fluorometric growth indicator based on detection of metabolic activity. A standard Alamar Blue Proliferation Assay is prepared in EGM-2MV with 10 ng /ml of bFGF added as a source of endothelial cell stimulation. This assay may be used with a variety of endothelial cells with slight changes in growth medium and cell concentration. Dilutions of the protein batches to be tested are diluted as appropriate.

Serum-free medium (GIBCO SFM) without bFGF is used as a non-stimulated control and Angiostatin or TSP-1 are included as a known inhibitory controls.

[1198] Briefly, LEC, BAECs or UTMECs are seeded in growth media at a density of 5000 to 2000 cells/well in a 96 well plate and placed at 37 degreesC overnight. After the overnight incubation of the cells, the growth media is removed and replaced with GIBCO EC-SFM. The cells are treated with the appropriate dilutions of the protein of interest or control protein sample(s) (prepared in SFM ) in triplicate wells with additional bFGF to a concentration of 10 ng/ ml. Once the cells have been treated with the samples, the plate(s) is/are placed back in the 37° C incubator for three days. After three days 10 ml of stock alamar blue (Biosource Cat# DAL1100) is added to each well and the plate(s) is/are placed back in the 37°C incubator for four hours. The plate(s) are then read at 530nm excitation and 590nm emission using the CytoFluor fluorescence reader. Direct output is recorded in relative fluorescence units.

[1199] Alamar blue is an oxidation-reduction indicator that both fluoresces and changes color in response to chemical reduction of growth medium resulting from cell growth. As cells grow in culture, innate metabolic activity results in a chemical reduction of the immediate surrounding environment. Reduction related to growth causes the indicator to change from oxidized (non-fluorescent blue) form to reduced (fluorescent red) form (i.e., stimulated proliferation will produce a stronger signal and inhibited proliferation will produce a weaker signal and the total signal is proportional to the total number of cells as well as their metabolic activity). The background level of activity is observed with the starvation medium alone. This is compared to the output observed from the positive control samples (bFGF in growth medium) and protein dilutions.

#### ***Example 45: Detection of Inhibition of a Mixed Lymphocyte Reaction***

[1200] This assay can be used to detect and evaluate inhibition of a Mixed Lymphocyte Reaction (MLR) by gene products (e.g., isolated polypeptides). Inhibition of a MLR may be due to a direct effect on cell proliferation and viability, modulation of costimulatory molecules on interacting cells, modulation of adhesiveness between lymphocytes and accessory cells, or modulation of cytokine production by accessory cells. Multiple cells may be targeted by these polypeptides since the peripheral blood mononuclear fraction

used in this assay includes T, B and natural killer lymphocytes, as well as monocytes and dendritic cells.

[1201] Polypeptides of interest found to inhibit the MLR may find application in diseases associated with lymphocyte and monocyte activation or proliferation. These include, but are not limited to, diseases such as asthma, arthritis, diabetes, inflammatory skin conditions, psoriasis, eczema, systemic lupus erythematosus, multiple sclerosis, glomerulonephritis, inflammatory bowel disease, crohn's disease, ulcerative colitis, arteriosclerosis, cirrhosis, graft vs. host disease, host vs. graft disease, hepatitis, leukemia and lymphoma.

[1202] Briefly, PBMCs from human donors are purified by density gradient centrifugation using Lymphocyte Separation Medium (LSM<sup>®</sup>, density 1.0770 g/ml, Organon Teknika Corporation, West Chester, PA). PBMCs from two donors are adjusted to  $2 \times 10^6$  cells/ml in RPMI-1640 (Life Technologies, Grand Island, NY) supplemented with 10% FCS and 2 mM glutamine. PBMCs from a third donor is adjusted to  $2 \times 10^5$  cells/ml. Fifty microliters of PBMCs from each donor is added to wells of a 96-well round bottom microtiter plate. Dilutions of test materials (50  $\mu$ l) is added in triplicate to microtiter wells. Test samples (of the protein of interest) are added for final dilution of 1:4; rhIL-2 (R&D Systems, Minneapolis, MN, catalog number 202-IL) is added to a final concentration of 1  $\mu$ g/ml; anti-CD4 mAb (R&D Systems, clone 34930.11, catalog number MAB379) is added to a final concentration of 10  $\mu$ g/ml. Cells are cultured for 7-8 days at 37°C in 5% CO<sub>2</sub>, and 1  $\mu$ C of [<sup>3</sup>H] thymidine is added to wells for the last 16 hrs of culture. Cells are harvested and thymidine incorporation determined using a Packard TopCount. Data is expressed as the mean and standard deviation of triplicate determinations.

[1203] Samples of the protein of interest are screened in separate experiments and compared to the negative control treatment, anti-CD4 mAb, which inhibits proliferation of lymphocytes and the positive control treatment, IL-2 (either as recombinant material or supernatant), which enhances proliferation of lymphocytes.

[1204] One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof.

### ***Example 46: Assays for Protease Activity***

[1205] The following assay may be used to assess protease activity of the polypeptides of the invention.

[1206] Gelatin and casein zymography are performed essentially as described (Heusen et al., *Anal. Biochem.*, 102:196-202 (1980); Wilson et al., *Journal of Urology*, 149:653-658 (1993)). Samples are run on 10% polyacryamide/0.1% SDS gels containing 1% gelatin or casein, soaked in 2.5% triton at room temperature for 1 hour, and in 0.1M glycine, pH 8.3 at 37°C 5 to 16 hours. After staining in amido black areas of proteolysis appear as clear areas against the blue-black background. Trypsin (Sigma T8642) is used as a positive control.

[1207] Protease activity is also determined by monitoring the cleavage of n-a-benzoyl-L-arginine ethyl ester (BAEE) (Sigma B-4500). Reactions are set up in (25mM NaPO<sub>4</sub>, 1mM EDTA, and 1mM BAEE), pH 7.5. Samples are added and the change in absorbance at 260nm is monitored on the Beckman DU-6 spectrophotometer in the time-drive mode. Trypsin is used as a positive control.

[1208] Additional assays based upon the release of acid-soluble peptides from casein or hemoglobin measured as absorbance at 280 nm or colorimetrically using the Folin method are performed as described in Bergmeyer, et al., *Methods of Enzymatic Analysis*, 5 (1984). Other assays involve the solubilization of chromogenic substrates (Ward, *Applied Science*, 251-317 (1983)).

### ***Example 47: Identifying Serine Protease Substrate Specificity***

[1209] Methods known in the art or described herein may be used to determine the substrate specificity of the polypeptides of the present invention having serine protease activity. A preferred method of determining substrate specificity is by the use of positional scanning synthetic combinatorial libraries as described in GB 2 324 529 (incorporated herein in its entirety).

### ***Example 48: Ligand Binding Assays***

[1210] The following assay may be used to assess ligand binding activity of the polypeptides of the invention.

[1211] Ligand binding assays provide a direct method for ascertaining receptor pharmacology and are adaptable to a high throughput format. The purified ligand for a polypeptide is radiolabeled to high specific activity (50-2000 Ci/mmol) for binding studies. A determination is then made that the process of radiolabeling does not diminish the activity of the ligand towards its polypeptide. Assay conditions for buffers, ions, pH and other modulators such as nucleotides are optimized to establish a workable signal to noise ratio for both membrane and whole cell polypeptide sources. For these assays, specific polypeptide binding is defined as total associated radioactivity minus the radioactivity measured in the presence of an excess of unlabeled competing ligand. Where possible, more than one competing ligand is used to define residual nonspecific binding.

### ***Example 49: Functional Assay in *Xenopus* Oocytes***

[1212] Capped RNA transcripts from linearized plasmid templates encoding the polypeptides of the invention are synthesized in vitro with RNA polymerases in accordance with standard procedures. In vitro transcripts are suspended in water at a final concentration of 0.2 mg/ml. Ovarian lobes are removed from adult female toads, Stage V defolliculated oocytes are obtained, and RNA transcripts (10 ng/oocyte) are injected in a 50 nl bolus using a microinjection apparatus. Two electrode voltage clamps are used to measure the currents from individual *Xenopus oocytes* in response polypeptides and polypeptide agonist exposure. Recordings are made in Ca<sup>2+</sup> free Barth's medium at room temperature. The *Xenopus* system can be used to screen known ligands and tissue/cell extracts for activating ligands.

### ***Example 50: Microphysiometric Assays***

[1213] Activation of a wide variety of secondary messenger systems results in extrusion of small amounts of acid from a cell. The acid formed is largely as a result of the increased metabolic activity required to fuel the intracellular signaling process. The pH changes in the media surrounding the cell are very small but are detectable by the CYTOSENSOR microphysiometer (Molecular Devices Ltd., Menlo Park, Calif.). The CYTOSENSOR is thus capable of detecting the activation of polypeptide which is coupled to an energy utilizing intracellular signaling pathway.

#### ***Example 51: Extract/Cell Supernatant Screening***

[1214] A large number of mammalian receptors exist for which there remains, as yet, no cognate activating ligand (agonist). Thus, active ligands for these receptors may not be included within the ligands banks as identified to date. Accordingly, the polypeptides of the invention can also be functionally screened (using calcium, cAMP, microphysiometer, oocyte electrophysiology, etc., functional screens) against tissue extracts to identify its natural ligands. Extracts that produce positive functional responses can be sequentially subfractionated until an activating ligand is isolated and identified.

#### ***Example 52: Calcium and cAMP Functional Assays***

[1215] Seven transmembrane receptors which are expressed in HEK 293 cells have been shown to be coupled functionally to activation of PLC and calcium mobilization and/or cAMP stimulation or inhibition. Basal calcium levels in the HEK 293 cells in receptor-transfected or vector control cells were observed to be in the normal, 100 nM to 200 nM, range. HEK 293 cells expressing recombinant receptors are loaded with fura 2 and in a single day >150 selected ligands or tissue/cell extracts are evaluated for agonist induced calcium mobilization. Similarly, HEK 293 cells expressing recombinant receptors are evaluated for the stimulation or inhibition of cAMP production using standard cAMP quantitation assays. Agonists presenting a calcium transient or cAMP fluctuation are tested in vector control cells to determine if the response is unique to the transfected cells expressing receptor.

### ***Example 53: ATP-binding assay***

[1216] The following assay may be used to assess ATP-binding activity of polypeptides of the invention.

[1217] ATP-binding activity of the polypeptides of the invention may be detected using the ATP-binding assay described in U.S. Patent 5,858,719, which is herein incorporated by reference in its entirety. Briefly, ATP-binding to polypeptides of the invention is measured via photoaffinity labeling with 8-azido-ATP in a competition assay. Reaction mixtures containing 1 mg/ml of the ABC transport protein of the present invention are incubated with varying concentrations of ATP, or the non-hydrolyzable ATP analog adenylyl-5'-imidodiphosphate for 10 minutes at 4°C. A mixture of 8-azido-ATP (Sigma Chem. Corp., St. Louis, MO.) plus 8-azido-ATP ( $^{32}\text{P}$ -ATP) (5 mCi/ $\mu\text{mol}$ , ICN, Irvine CA.) is added to a final concentration of 100  $\mu\text{M}$  and 0.5 ml aliquots are placed in the wells of a porcelain spot plate on ice. The plate is irradiated using a short wave 254 nm UV lamp at a distance of 2.5 cm from the plate for two one-minute intervals with a one-minute cooling interval in between. The reaction is stopped by addition of dithiothreitol to a final concentration of 2mM. The incubations are subjected to SDS-PAGE electrophoresis, dried, and autoradiographed. Protein bands corresponding to the particular polypeptides of the invention are excised, and the radioactivity quantified. A decrease in radioactivity with increasing ATP or adenylyl-5'-imidodiphosphate provides a measure of ATP affinity to the polypeptides.

### ***Example 54: Small Molecule Screening***

[1218] This invention is particularly useful for screening therapeutic compounds by using the polypeptides of the invention, or binding fragments thereof, in any of a variety of drug screening techniques. The polypeptide or fragment employed in such a test may be affixed to a solid support, expressed on a cell surface, free in solution, or located intracellularly. One method of drug screening utilizes eukaryotic or prokaryotic host cells



which are stably transformed with recombinant nucleic acids expressing the polypeptide or fragment. Drugs are screened against such transformed cells in competitive binding assays. One may measure, for example, the formulation of complexes between the agent being tested and polypeptide of the invention.

[1219] Thus, the present invention provides methods of screening for drugs or any other agents which affect activities mediated by the polypeptides of the invention. These methods comprise contacting such an agent with a polypeptide of the invention or fragment thereof and assaying for the presence of a complex between the agent and the polypeptide or fragment thereof, by methods well known in the art. In such a competitive binding assay, the agents to screen are typically labeled. Following incubation, free agent is separated from that present in bound form, and the amount of free or uncomplexed label is a measure of the ability of a particular agent to bind to the polypeptides of the invention.

[1220] Another technique for drug screening provides high throughput screening for compounds having suitable binding affinity to the polypeptides of the invention, and is described in great detail in European Patent Application 84/03564, published on September 13, 1984, which is herein incorporated by reference in its entirety. Briefly stated, large numbers of different small molecule test compounds are synthesized on a solid substrate, such as plastic pins or some other surface. The test compounds are reacted with polypeptides of the invention and washed. Bound polypeptides are then detected by methods well known in the art. Purified polypeptides are coated directly onto plates for use in the aforementioned drug screening techniques. In addition, non-neutralizing antibodies may be used to capture the peptide and immobilize it on the solid support.

[1221] This invention also contemplates the use of competitive drug screening assays in which neutralizing antibodies capable of binding polypeptides of the invention specifically compete with a test compound for binding to the polypeptides or fragments thereof. In this manner, the antibodies are used to detect the presence of any peptide which shares one or more antigenic epitopes with a polypeptide of the invention.

### ***Example 55: Phosphorylation Assay***

[1222] In order to assay for phosphorylation activity of the polypeptides of the invention, a phosphorylation assay as described in U.S. Patent 5,958,405 (which is herein

incorporated by reference) is utilized. Briefly, phosphorylation activity may be measured by phosphorylation of a protein substrate using gamma-labeled  $^{32}\text{P}$ -ATP and quantitation of the incorporated radioactivity using a gamma radioisotope counter. The polypeptides of the invention are incubated with the protein substrate,  $^{32}\text{P}$ -ATP, and a kinase buffer. The  $^{32}\text{P}$  incorporated into the substrate is then separated from free  $^{32}\text{P}$ -ATP by electrophoresis, and the incorporated  $^{32}\text{P}$  is counted and compared to a negative control. Radioactivity counts above the negative control are indicative of phosphorylation activity of the polypeptides of the invention.

***Example 56: Detection of Phosphorylation Activity (Activation) of the Polypeptides of the Invention in the Presence of Polypeptide Ligands***

[1223] Methods known in the art or described herein may be used to determine the phosphorylation activity of the polypeptides of the invention. A preferred method of determining phosphorylation activity is by the use of the tyrosine phosphorylation assay as described in US 5,817,471 (incorporated herein by reference).

***Example 57: Identification Of Signal Transduction Proteins That Interact With Polypeptides Of The Present Invention***

[1224] The purified polypeptides of the invention are research tools for the identification, characterization and purification of additional signal transduction pathway proteins or receptor proteins. Briefly, labeled polypeptides of the invention are useful as reagents for the purification of molecules with which it interacts. In one embodiment of affinity purification, polypeptides of the invention are covalently coupled to a chromatography column. Cell-free extract derived from putative target cells, such as carcinoma tissues, is passed over the column, and molecules with appropriate affinity bind to the polypeptides of the invention. The protein complex is recovered from the column, dissociated, and the recovered molecule subjected to N-terminal protein sequencing. This amino acid sequence is then used to identify the captured molecule or to design degenerate

oligonucleotide probes for cloning the relevant gene from an appropriate cDNA library.

### ***Example 58: IL-6 Bioassay***

[1225] To test the proliferative effects of the polypeptides of the invention, the IL-6 Bioassay as described by Marz *et al.* is utilized (*Proc. Natl. Acad. Sci., U.S.A.*, 95:3251-56 (1998), which is herein incorporated by reference). Briefly, IL-6 dependent B9 murine cells are washed three times in IL-6 free medium and plated at a concentration of 5,000 cells per well in 50  $\mu$ l, and 50  $\mu$ l of the IL-6-like polypeptide is added. After 68 hrs. at 37°C, the number of viable cells is measured by adding the tetrazolium salt thiazolyl blue (MTT) and incubating for a further 4 hrs. at 37°C. B9 cells are lysed by SDS and optical density is measured at 570 nm. Controls containing IL-6 (positive) and no cytokine (negative) are utilized. Enhanced proliferation in the test sample(s) relative to the negative control is indicative of proliferative effects mediated by polypeptides of the invention.

### ***Example 59: Support of Chicken Embryo Neuron Survival***

[1226] To test whether sympathetic neuronal cell viability is supported by polypeptides of the invention, the chicken embryo neuronal survival assay of Senaldi *et al.* is utilized (*Proc. Natl. Acad. Sci., U.S.A.*, 96:11458-63 (1998), which is herein incorporated by reference). Briefly, motor and sympathetic neurons are isolated from chicken embryos, resuspended in L15 medium (with 10% FCS, glucose, sodium selenite, progesterone, conalbumin, putrescine, and insulin; Life Technologies, Rockville, MD.) and Dulbecco's modified Eagles medium [with 10% FCS, glutamine, penicillin, and 25 mM Hepes buffer (pH 7.2); Life Technologies, Rockville, MD.], respectively, and incubated at 37°C in 5% CO<sub>2</sub> in the presence of different concentrations of the purified IL-6-like polypeptide, as well as a negative control lacking any cytokine. After 3 days, neuron survival is determined by evaluation of cellular morphology, and through the use of the colorimetric assay of Mosmann (Mosmann, T., *J. Immunol. Methods*, 65:55-63 (1983)). Enhanced neuronal cell viability as compared to the controls lacking cytokine is indicative of the ability of the inventive purified IL-6-like polypeptide(s) to enhance the survival of neuronal cells.

### ***Example 60: Assay for Phosphatase Activity***

[1227] The following assay may be used to assess serine/threonine phosphatase (PTPase) activity of the polypeptides of the invention.

[1228] In order to assay for serine/threonine phosphatase (PTPase) activity, assays can be utilized which are widely known to those skilled in the art. For example, the serine/threonine phosphatase (PSPase) activity is measured using a PSPase assay kit from New England Biolabs, Inc. Myelin basic protein (MyBP), a substrate for PSPase, is phosphorylated on serine and threonine residues with cAMP-dependent Protein Kinase in the presence of [ $^{32}$ P]ATP. Protein serine/threonine phosphatase activity is then determined by measuring the release of inorganic phosphate from 32P-labeled MyBP.

### ***Example 61: Interaction of Serine/Threonine Phosphatases with other Proteins***

[1229] The polypeptides of the invention with serine/threonine phosphatase activity as determined in Example 60 are research tools for the identification, characterization and purification of additional interacting proteins or receptor proteins, or other signal transduction pathway proteins. Briefly, labeled polypeptide(s) of the invention is useful as a reagent for the purification of molecules with which it interacts. In one embodiment of affinity purification, polypeptide of the invention is covalently coupled to a chromatography column. Cell-free extract derived from putative target cells, such as neural or liver cells, is passed over the column, and molecules with appropriate affinity bind to the polypeptides of the invention. The polypeptides of the invention -complex is recovered from the column, dissociated, and the recovered molecule subjected to N-terminal protein sequencing. This amino acid sequence is then used to identify the captured molecule or to design degenerate oligonucleotide probes for cloning the relevant gene from an appropriate cDNA library.

### ***Example 62: Assaying for Heparanase Activity***

[1230] In order to assay for heparanase activity of the polypeptides of the invention, the heparanase assay described by Vlodavsky et al is utilized (Vlodavsky, I., et al., Nat. Med., 5:793-802 (1999)). Briefly, cell lysates, conditioned media or intact cells ( $1 \times 10^6$  cells per 35-mm dish) are incubated for 18 hrs at 37°C, pH 6.2-6.6, with  $^{35}\text{S}$ -labeled ECM or soluble ECM derived peak I proteoglycans. The incubation medium is centrifuged and the supernatant is analyzed by gel filtration on a Sepharose CL-6B column (0.9 x 30 cm). Fractions are eluted with PBS and their radioactivity is measured. Degradation fragments of heparan sulfate side chains are eluted from Sepharose 6B at  $0.5 < K_{av} < 0.8$  (peak II). Each experiment is done at least three times. Degradation fragments corresponding to "peak II," as described by Vlodavsky et al., is indicative of the activity of the polypeptides of the invention in cleaving heparan sulfate.

### ***Example 63: Immobilization of biomolecules***

[1231] This example provides a method for the stabilization of polypeptides of the invention in non-host cell lipid bilayer constructs (see, e.g., Bieri et al., Nature Biotech 17:1105-1108 (1999), hereby incorporated by reference in its entirety herein) which can be adapted for the study of polypeptides of the invention in the various functional assays described above. Briefly, carbohydrate-specific chemistry for biotinylation is used to confine a biotin tag to the extracellular domain of the polypeptides of the invention, thus allowing uniform orientation upon immobilization. A 50uM solution of polypeptides of the invention in washed membranes is incubated with 20 mM NaIO<sub>4</sub> and 1.5 mg/ml (4mM) BACH or 2 mg/ml (7.5mM) biotin-hydrazide for 1 hr at room temperature (reaction volume, 150ul). Then the sample is dialyzed (Pierce Slidealizer Cassett, 10 kDa cutoff; Pierce Chemical Co., Rockford IL) at 4C first for 5 h, exchanging the buffer after each hour, and finally for 12 h against 500 ml buffer R (0.15 M NaCl, 1 mM MgCl<sub>2</sub>, 10 mM sodium phosphate, pH7). Just before addition into a cuvette, the sample is diluted 1:5 in buffer ROG50 (Buffer R supplemented with 50 mM octylglucoside).

### ***Example 64: TAQMAN***

[1232] Quantitative PCR (QPCR). Total RNA from cells in culture are extracted by Trizol separation as recommended by the supplier (LifeTechnologies). (Total RNA is treated with DNase I (Life Technologies) to remove any contaminating genomic DNA before reverse transcription.) Total RNA (50 ng) is used in a one-step, 50ul, RT-QPCR, consisting of Taqman Buffer A (Perkin-Elmer; 50 mM KCl/10 mM Tris, pH 8.3), 5.5 mM MgCl<sub>2</sub>, 240 µM each dNTP, 0.4 units RNase inhibitor(Promega), 8%glycerol, 0.012% Tween-20, 0.05% gelatin, 0.3uM primers, 0.1uM probe, 0.025units Amplitaq Gold (Perkin-Elmer) and 2.5 units Superscript II reverse transcriptase (Life Technologies). As a control for genomic contamination, parallel reactions are setup without reverse transcriptase. The relative abundance of (unknown) and 18S RNAs are assessed by using the Applied Biosystems Prism 7700 Sequence Detection System (Livak, K. J., Flood, S. J., Marmaro, J., Giusti, W. & Deetz, K. (1995) PCR Methods Appl. 4, 357-362). Reactions are carried out at 48°C for 30 min, 95°C for 10 min, followed by 40 cycles of 95°C for 15s, 60°C for 1 min. Reactions are performed in triplicate.

[1233] Primers (f & r) and FRET probes sets are designed using Primer Express Software (Perkin-Elmer). Probes are labeled at the 5'-end with the reporter dye 6-FAM and on the 3'-end with the quencher dye TAMRA (Biosource International, Camarillo, CA or Perkin-Elmer).

### ***Example 65: Assays for Metalloproteinase Activity***

[1234] Metalloproteinases (EC 3.4.24.-) are peptide hydrolases which use metal ions, such as Zn<sup>2+</sup>, as the catalytic mechanism. Metalloproteinase activity of polypeptides of the present invention can be assayed according to the following methods.

#### ***Proteolysis of alpha-2-macroglobulin***

[1235] To confirm protease activity, purified polypeptides of the invention are mixed with the substrate alpha-2-macroglobulin (0.2 unit/ml; Boehringer Mannheim, Germany) in 1x assay buffer (50 mM HEPES, pH 7.5, 0.2 M NaCl, 10 mM CaCl<sub>2</sub>, 25 µM ZnCl<sub>2</sub> and

0.05% Brij-35) and incubated at 37°C for 1-5 days. Trypsin is used as positive control. Negative controls contain only alpha-2-macroglobulin in assay buffer. The samples are collected and boiled in SDS-PAGE sample buffer containing 5% 2-mercaptoethanol for 5-min, then loaded onto 8% SDS-polyacrylamide gel. After electrophoresis the proteins are visualized by silver staining. Proteolysis is evident by the appearance of lower molecular weight bands as compared to the negative control.

*Inhibition of alpha-2-macroglobulin proteolysis by inhibitors of metalloproteinases*

[1236] Known metalloproteinase inhibitors (metal chelators (EDTA, EGTA, AND  $\text{HgCl}_2$ ), peptide metalloproteinase inhibitors (TIMP-1 and TIMP-2), and commercial small molecule MMP inhibitors) are used to characterize the proteolytic activity of polypeptides of the invention. The three synthetic MMP inhibitors used are: MMP inhibitor I, [ $\text{IC}_{50}$  = 1.0  $\mu\text{M}$  against MMP-1 and MMP-8;  $\text{IC}_{50}$  = 30  $\mu\text{M}$  against MMP-9;  $\text{IC}_{50}$  = 150  $\mu\text{M}$  against MMP-3]; MMP-3 (stromelysin-1) inhibitor I [ $\text{IC}_{50}$  = 5  $\mu\text{M}$  against MMP-3], and MMP-3 inhibitor II [ $\text{K}_i$  = 130 nM against MMP-3]; inhibitors available through Calbiochem, catalog # 444250, 444218, and 444225, respectively). Briefly, different concentrations of the small molecule MMP inhibitors are mixed with purified polypeptides of the invention (50 $\mu\text{g}/\text{ml}$ ) in 22.9  $\mu\text{l}$  of 1x HEPES buffer (50 mM HEPES, pH 7.5, 0.2 M NaCl, 10 mM  $\text{CaCl}_2$ , 25  $\mu\text{M}$   $\text{ZnCl}_2$  and 0.05%Brij-35) and incubated at room temperature (24 °C) for 2-hr, then 7.1  $\mu\text{l}$  of substrate alpha-2-macroglobulin (0.2 unit/ml) is added and incubated at 37°C for 20-hr. The reactions are stopped by adding 4x sample buffer and boiled immediately for 5 minutes. After SDS-PAGE, the protein bands are visualized by silver stain.

*Synthetic Fluorogenic Peptide Substrates Cleavage Assay*

[1237] The substrate specificity for polypeptides of the invention with demonstrated metalloproteinase activity can be determined using synthetic fluorogenic peptide substrates (purchased from BACHEM Bioscience Inc). Test substrates include, M-1985, M-2225, M-2105, M-2110, and M-2255. The first four are MMP substrates and the last one is a substrate of tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) converting enzyme (TACE). All the substrates are prepared in 1:1 dimethyl sulfoxide (DMSO) and water. The stock solutions are 50-500  $\mu\text{M}$ . Fluorescent assays are performed by using a Perkin Elmer LS 50B 2070

luminescence spectrometer equipped with a constant temperature water bath. The excitation  $\lambda$  is 328 nm and the emission  $\lambda$  is 393 nm. Briefly, the assay is carried out by incubating 176  $\mu$ l 1x HEPES buffer (0.2 M NaCl, 10 mM CaCl<sub>2</sub>, 0.05% Brij-35 and 50 mM HEPES, pH 7.5) with 4  $\mu$ l of substrate solution (50  $\mu$ M) at 25 °C for 15 minutes, and then adding 20  $\mu$ l of a purified polypeptide of the invention into the assay cuvet. The final concentration of substrate is 1  $\mu$ M. Initial hydrolysis rates are monitored for 30-min.

***Example 66: Characterization of the cDNA contained in a deposited plasmid***

[1238] The size of the cDNA insert contained in a deposited plasmid may be routinely determined using techniques known in the art, such as PCR amplification using synthetic primers hybridizable to the 3' and 5' ends of the cDNA sequence. For example, two primers of 17-30 nucleotides derived from each end of the cDNA (i.e., hybridizable to the absolute 5' nucleotide or the 3' nucleotide end of the sequence of SEQ ID NO:X, respectively) are synthesized and used to amplify the cDNA using the deposited cDNA plasmid as a template. The polymerase chain reaction is carried out under routine conditions, for instance, in 25  $\mu$ l of reaction mixture with 0.5  $\mu$ g of the above cDNA template. A convenient reaction mixture is 1.5-5 mM MgCl<sub>2</sub>, 0.01% (w/v) gelatin, 20  $\mu$ M each of dATP, dCTP, dGTP, dTTP, 25 pmol of each primer and 0.25 Unit of Taq polymerase. Thirty five cycles of PCR (denaturation at 94 degree C for 1 min; annealing at 55 degree C for 1 min; elongation at 72 degree C for 1 min) are performed with a Perkin-Elmer Cetus automated thermal cycler. The amplified product is analyzed by agarose gel electrophoresis. The PCR product is verified to be the selected sequence by subcloning and sequencing the DNA product.

[1239] It will be clear that the invention may be practiced otherwise than as particularly described in the foregoing description and examples. Numerous



modifications and variations of the present invention are possible in light of the above teachings and, therefore, are within the scope of the appended claims.

[1240] The entire disclosure of each document cited (including patents, patent applications, journal articles, abstracts, laboratory manuals, books, or other disclosures) in the Background of the Invention, Detailed Description, and Examples is hereby incorporated herein by reference. In addition, the paper and electronic copy of the sequence listing submitted herewith and the corresponding computer readable form are both incorporated herein by reference in their entireties. The specification and sequence listing of U.S. Application No. 60/205,515, filed 19-May-2000, are herein incorporated by reference in their entirety.

[1241] Moreover, the hard copy of and the corresponding computer readable form of the Sequence Listing of U.S. Application Serial No. 60/205,515 are also incorporated herein by reference in their entireties.

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# **INDICATIONS RELATING TO A DEPOSITED MICROORGANISM OR OTHER BIOLOGICAL MATERIAL**

(PCT Rule 13bis)

**A.** The indications made below relate to the deposited microorganism or other biological material referred to in the description on page 15, line 12.

**B. IDENTIFICATION OF DEPOSIT**

Further deposits are identified on an additional sheet ☒

Name of depositary institution: American Type Culture Collection

Address of depositary institution (*including postal code and country*)

10801 University Boulevard  
Manassas, Virginia 20110-2209  
United States of America

Date of deposit

March 24, 2000

Accession Number

PTA-1559

**C. ADDITIONAL INDICATIONS** (*leave blank if not applicable*)

This information is continued on an additional sheet ☐

**D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE** (*if the indications are not for all designated States*)

Europe

In respect of those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which the application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28(4) EPC).

Continued on additional sheets

**E. SEPARATE FURNISHING OF INDICATIONS** (*leave blank if not applicable*)

The indications listed below will be submitted to the international Bureau later (*specify the general nature of the indications e.g., "Accession Number of Deposit"*)

	For receiving Office use only			For International Bureau use only	
<input type="checkbox"/> This sheet was received with the international application		<input type="checkbox"/> This sheet was received by the International Bureau on:			
Authorized officer		Authorized officer			

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**ATCC Deposit No. PTA-1559****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

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**ATCC Deposit No.: PTA-1559****UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

**NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

*What Is Claimed Is:*

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a polynucleotide fragment of SEQ ID NO:X or a polynucleotide fragment of the cDNA sequence contained in Clone ID NO:Z, which is hybridizable to SEQ ID NO:X;

(b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:Y or a polypeptide fragment encoded by the cDNA sequence contained in cDNA Clone ID NO:Z, which is hybridizable to SEQ ID NO:X;

(c) a polynucleotide encoding a polypeptide fragment of a polypeptide encoded by SEQ ID NO:X or a polypeptide fragment encoded by the cDNA sequence contained in cDNA Clone ID NO:Z, which is hybridizable to SEQ ID NO:X;

(d) a polynucleotide encoding a polypeptide domain of SEQ ID NO:Y or a polypeptide domain encoded by the cDNA sequence contained in cDNA Clone ID NO:Z, which is hybridizable to SEQ ID NO:X;

(e) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:Y or a polypeptide epitope encoded by the cDNA sequence contained in cDNA Clone ID NO:Z, which is hybridizable to SEQ ID NO:X;

(f) a polynucleotide encoding a polypeptide of SEQ ID NO:Y or the cDNA sequence contained in cDNA Clone ID NO:Z, which is hybridizable to SEQ ID NO:X, having biological activity;

(g) a polynucleotide which is a variant of SEQ ID NO:X;

(h) a polynucleotide which is an allelic variant of SEQ ID NO:X;

(i) a polynucleotide which encodes a species homologue of the SEQ ID NO:Y;

(j) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(i), wherein said polynucleotide does not hybridize under stringent conditions to a nucleic acid molecule having a nucleotide sequence of only A residues or of only T residues.

2. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding a protein.

3. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding the sequence identified as SEQ ID NO:Y or the polypeptide encoded by the cDNA sequence contained in cDNA Clone ID NO:Z, which is hybridizable to SEQ ID NO:X.
4. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises the entire nucleotide sequence of SEQ ID NO:X or the cDNA sequence contained in cDNA Clone ID NO:Z, which is hybridizable to SEQ ID NO:X.
5. The isolated nucleic acid molecule of claim 2, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.
6. The isolated nucleic acid molecule of claim 3, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.
7. A recombinant vector comprising the isolated nucleic acid molecule of claim 1.
8. A method of making a recombinant host cell comprising the isolated nucleic acid molecule of claim 1.
9. A recombinant host cell produced by the method of claim 8.
10. The recombinant host cell of claim 9 comprising vector sequences.
11. An isolated polypeptide comprising an amino acid sequence at least 90% identical to a sequence selected from the group consisting of:
  - (a) a polypeptide fragment of SEQ ID NO:Y or the encoded sequence contained in cDNA Clone ID NO:Z;

- (b) a polypeptide fragment of SEQ ID NO:Y or the encoded sequence contained in cDNA Clone ID NO:Z, having biological activity;
- (c) a polypeptide domain of SEQ ID NO:Y or the encoded sequence contained in cDNA Clone ID NO:Z;
- (d) a polypeptide epitope of SEQ ID NO:Y or the encoded sequence contained in cDNA Clone ID NO:Z;
- (e) a full length protein of SEQ ID NO:Y or the encoded sequence contained in cDNA Clone ID NO:Z;
- (f) a variant of SEQ ID NO:Y;
- (g) an allelic variant of SEQ ID NO:Y; or
- (h) a species homologue of the SEQ ID NO:Y.

12. The isolated polypeptide of claim 11, wherein the full length protein comprises sequential amino acid deletions from either the C-terminus or the N-terminus.

13. An isolated antibody that binds specifically to the isolated polypeptide of claim 11.

14. A recombinant host cell that expresses the isolated polypeptide of claim 11.

15. A method of making an isolated polypeptide comprising:

- (a) culturing the recombinant host cell of claim 14 under conditions such that said polypeptide is expressed; and
- (b) recovering said polypeptide.

16. The polypeptide produced by claim 15.

17. A method for preventing, treating, or ameliorating a medical condition, comprising administering to a mammalian subject a therapeutically effective amount of the polynucleotide of claim 1.

18. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

(a) determining the presence or absence of a mutation in the polynucleotide of claim 1; and

(b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or absence of said mutation.

19. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

(a) determining the presence or amount of expression of the polypeptide of claim 11 in a biological sample; and

(b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of the polypeptide.

20. A method for identifying a binding partner to the polypeptide of claim 11 comprising:

(a) contacting the polypeptide of claim 11 with a binding partner; and

(b) determining whether the binding partner effects an activity of the polypeptide.

21. The gene corresponding to the cDNA sequence of SEQ ID NO:Y.

22. A method of identifying an activity in a biological assay, wherein the method comprises:

(a) expressing SEQ ID NO:X in a cell;

(b) isolating the supernatant;

(c) detecting an activity in a biological assay; and

(d) identifying the protein in the supernatant having the activity.

23. The product produced by the method of claim 20.



24. A method for preventing, treating, or ameliorating a medical condition, comprising administering to a mammalian subject a therapeutically effective amount of the polypeptide of claim 11.

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